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Situation and Outlook Series

Contents

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Preface

The term "Former Soviet Union (FSU)" used throughout this report refers to the sum of 15 individual countries--the 12 newly independent countries of the former USSR (Russian Federation, Ukraine, Belarus, Uzbekistan, Kazakhstan, Georgia, Azerbaijan, Moldova, Kyrgyzstan, Tajikistan, Armenia, Turkmenistan) and the three Baltic countries (Estonia, Latvia and Lithuania). The term "intra-FSU trade" used in this report refers to trade among the 15 countries identified above. "Extra-FSU" trade refers to trade between the FSU and countries not included in the FSU.

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Russian Ruble/Dollar Average Monthly Exchange Rate

	1990	1991	1992	1993	1994
January	10.27	25.26	197.50	495.42	1,451.64
February	12.32	34.32	186.00	569.00	1,575.82
March	13.52	36.08	152.26	664.56	1,741.20
April	15.91	35.19	153.56	767.22	1,791.55
May	20.59	38.10	121.72	928.25	1,860.20
June	24.17	40.55	125.99	1,080.00	
July	24.17	52.40	143.37	1,024.55	
August	23.47	51.98	168.16	985.84	
September	22.29	55.05	223.92	1,068.64	
October	22.29	63.70	359.38	1,187.14	
November	20.18	107.20	426.38	1,194.45	
December	22.88	169.73	414.50	1,240.42	
Annual average	**19.34**	**59.13**	**222.73**	**933.79**	

Averages based on results of foreign exchange auctions held by Vneshekonombank and Moscow Interbank Currency Exchange auctions organized under the auspices of Gosbank.
Sources: *Kommersant; Ekonomika i zhizn';* International Monetary Fund Economic Review.

Summary

Economic reforms and tight financial constraints in the countries of the former Soviet Union (FSU) have caused significant reductions in import demand for a number of agricultural commodities since the demise of the USSR in 1991. Total FSU imports of grain, which averaged over 40 million tons in the 1980's, fell to an estimated 20.5 million tons in 1993/94, the lowest in over 15 years. However, even with the sharp drop in grain imports, the FSU remains among the world's largest grain buyers.

The value of U.S. agricultural exports to the FSU in fiscal 1993/94 is forecast at $1.3 billion, down about 17 percent from fiscal 1992/93, and down around 50 percent from fiscal 1991/92. The fiscal 1993/94 forecast would put the value of U.S. agricultural exports (primarily grain and oilseeds) to the FSU at its lowest point since fiscal 1986/87, and likely place the FSU as the seventh largest buyer of U.S. farm products.

Barring a significant crop shortfall, FSU imports are likely to continue at this low level for the foreseeable future. While many reforms have taken place, economic recovery and growth, which would likely spur an increase in imports in the region, will probably be slow in coming, depending upon when further major reform measures are implemented.

These further reforms, such as the implementation of noninflationary fiscal and monetary policies, the formation of competitive markets for agricultural commodities, liberalization of trade, and the development of robust capital markets, have to date proven very difficult for the FSU governments to introduce.

The governments of the FSU countries, to differing degrees, have pushed forward a number of reforms consistent with a transition to a market economy, such as price liberalization, privatization, decentralization of State procurements, and subsidy cutbacks. These measures have had the shortrun effect of lowering import demand. However, at the same time, most FSU governments have attempted to maintain employment and arrest the downturn in production, both at the expense of higher inflation. These two sets of policies, aimed at a market transition and maintaining employment, are inconsistent in the sense that policies directed toward the latter goal prevent and delay the implementation of policies aimed at the former.

Lower FSU imports during the last 3 years have resulted from the restructuring in the FSU economies and agriculture as those countries have undergone economic reform and have had to cope with substantial external debt. Grain use has declined considerably as livestock inventories in the countries of the FSU have fallen. Falling animal numbers are a result of price deregulation, which led to a sizable drop in real incomes and consumer demand for livestock products, and decreased agricultural support to the livestock sector, as the FSU governments eliminated much of the considerable producer and consumer subsidies for meat that existed before reforms. Reduced grain waste and losses, including a sharp drop in feeding of bread to animals, have also contributed to decreased grain utilization.

High external debt and large budget deficits have left FSU governments less able to import agricultural commodities, other than those financed by loans or imported as food aid. The Russian Federation, by far the largest grain importer in the FSU, assumed most of the FSU's estimated $80-$90-billion external debt.

While many of the FSU countries in Central Asia and the Transcaucasus will likely continue to receive food assistance in the near to medium term, past levels of concessional and commercial credits to Russia are likely to decline. During fiscal years 1990/91-1993/94 (to date), Russia likely received over half of the estimated $7 billion in U.S. GSM commercial credit guarantees, concessional credits, and food donations offered to the FSU. Also, growing calls within the FSU for the imposition of import tariffs to protect domestic producers are lowering expectations for increased food imports in the near term.

Fairly stable grain production and procurements in the FSU during the last 2 years have dampened import demand as well. FSU grain output, which averaged about 180 million tons during 1987-1993, was projected by USDA in May at about 170 million tons for 1994, down nearly 5 percent from 1993. The projected decline in 1994 production is primarily the result of an estimated weather-related drop in area sown to winter grains.

According to Russian sources, the use of fertilizers fell over 50 percent in 1993 compared to the 1986-1990 5-year average. The drop in fertilizer use was due to the sharp deterioration in farmers' terms-of-trade. However, to date, grain yields in Russia have not shown significant declines, despite lower fertilizer use. Over time, continued lower input use is likely to adversely affect yields as soil nutrients are depleted.

Although FSU imports of bulk commodities, such as grain, have fallen due to market-based restructuring and financial constraints, imports of certain higher-value products have begun to rise. Increased private sector trade, food assistance, and newly released consumer demand for foreign goods account for much of the increase in high-value imports, which should grow even further over the long term, as successful market reforms increase productivity and economic recovery begins.

Commonwealth of Independent States

Policy and Legacy Drive FSU Macroeconomic Performance

FSU governments have implemented policies aimed primarily at arresting declines in production and employment in the State sector, while simultaneously pursuing other policies consistent with a transition to a market economy. These sets of policies aimed at essentially irreconcilable goals have tended to counteract each other, leading to economic stagnation and decline, and uneven progress on economic reform. [David J. Sedik]

The governments of the countries of the former Soviet Union (FSU) are currently faced with two powerful economic legacies of the Soviet period that shape economic policies. The first is the poor overall economic performance of the State-dominated socialist economy in the Soviet Union in the pre-Gorbachev period of the early-1980's. The reasons for poor performance were the well-known limitations of the socialist economic system, such as lack of innovation and entrepreneurship, poor response to consumer demand, poor quality, low productivity, and so forth. Second, the halfway reforms of the Gorbachev era (1985-91) caused the unraveling of the traditional administrative controls on money and credit issue as well as political controls within the FSU. These halfway reforms left a legacy of high, open inflation, negative economic growth, and the breakup of the Soviet Union into 15 separate countries.

In 1992, governments in the FSU often verbally supported the longrun goal of a transition to a market economy as a cure for the maladies of the statist economy, and price deregulation was a big step toward a greater role for the market. However, the balance of policies enacted in 1992 and 1993 has been aimed at arresting the production downturn and preventing open unemployment in most countries of the FSU at the expense of higher inflation. These policies are essentially short-term solutions to what is seen as a production and employment crisis in industry and agriculture, and provide no real solution to the longer range problems of the statist economies currently in place in the former Soviet Union. Moreover, they actually prevent and delay the implementation of policies aimed at the market transition, such as macroeconomic stabilization, the formation of competitive markets, liberalization of trade, and the development of robust capital markets.

The outlook for further progress on market transition in the FSU countries depends on the actual implementation of policies aimed at macroeconomic stabilization, the formation of competitive markets, liberalization of trade, and the development of robust capital markets. Implementation of these goals requires that the balance of policies in these countries tilt away from preventing open unemployment, maintaining State supplies, maintaining State-to-State barter, and increasing worker wages without regard to productivity. There are signs in **Russia** that the Chernomyrdin Government may be attempting to direct policy measures in this direction. However, this is not the first year that the outlook for reform looked hopeful in the spring, only to darken later in the year.

Output Decline Precipitated by the Disintegration of the Soviet Economy and Polity

The economies of the former Soviet Union are well into their fifth year of income decreases that now surpass those of the Great Depression in the United States. Moreover, 1994 will most likely be the third year of 1,000-percent inflation in the FSU countries, save the Baltics. The falls in output which overtook the FSU beginning in 1990 appear to have lessened in 1993 (table 1). Nevertheless, most of the economies of the former Soviet Union are still in the midst of severe depressions, accompanied by extraordinarily high rates of inflation.

It is often assumed that the falls in output in the FSU countries are a direct result of policies aimed at a market transition. In fact, negative economic growth in the FSU may be more a result of the deterioration of the socialist economy due to halfway reforms, rather than a result of policies aimed at a transition to a market economy. Negative economic growth started in the USSR in 1990, 2 years before the announcement of policies aimed at the transition. Moreover, every FSU country has experienced contractions in industrial output within the past few years, as well as severe inflation, while the implementation of policies aimed at a transition to a market economy has differed significantly. The **Baltic countries** have been in the forefront of market transition policies, while economies such as those in **Uzbekistan, Turkmenistan,** and **Belarus** have changed very little since 1991. Finally, in Poland, the country with the most successful and radical economic reforms in Eastern Europe, economic contraction began in 1990, the year of price liberalization, and growth began only in 1993, after price stabilization.

Output declines since 1992 in the FSU were caused by four factors which were already in place before that year. First, the dissolution of the Council for Mutual Economic Assistance (CMEA) in 1989, and then the political breakup of the Union, disrupted input supplies and eliminated markets for FSU enterprises, causing them to cut output precipitously (table 2). Next, regulated price increases in 1991 and then partial price deregulation in 1992 led to a price/cost squeeze for enterprises and farms, since prices for previously heavily subsidized inputs and fuel rose faster than those for finished goods (table 3). The price/cost squeeze drove many enterprises to losses and put pressure on producers to produce more efficiently or slow or halt production. Third, production fell beginning in 1991 as a result of increasing transaction costs of doing business in the FSU economies, with severe shortages and continuing into 1992 and 1993 with severe

Table 1--Economic indicators, selected FSU countries, 1990-93

Country	1990	1991	1992	1993
Russian Federation		*Percent change*		
Consumer prices	5.3	92.6	1,090.0	900.0
GDP	-11.0	-12.9	-19.5	-12.0
Industrial production	-0.1	-8.0	-18.8	-16.2
Agricultural production	-3.6	-4.5	-9.0	-2.1
Unemployment (% of labor force)	na	0.1	0.8	1.0
Real income	12.1	12.5	-36.6	10.0
Fiscal surplus/deficit (% of GDP)	0.0	-30.0	-10.0	-14.4
Retail sales	9.8	-7.2	-35.3	2.0
Ukraine				
Consumer prices	4.8	83.5	1,200.0	3,688.0
GDP	-2.6	-10.0	-14.0	na
Industrial production	-0.1	-4.8	-6.0	-12.5
Agricultural production	-3.7	-13.2	-8.0	-2.0
Unemployment (% of labor force)	na	0.0	0.3	na
Real income	10.4	2.0	-5.8	na
Fiscal surplus/deficit (% of GDP)	na	-7.2	-7.5	-40.0
Retail sales	11.5	-9.7	-18.0	-28.2
Estonia				
Consumer prices	17.2	210.6	1,069.3	89.8
GDP	-3.6	-11.8	-31.6	na
Industrial production	na	-9.5	-38.7	-32.4
Agricultural production		-20.8	-21.3	na
Unemployment (% of labor force)	na	1.2	5.5	na
Real income	na	-39.9	-50.2	na
Fiscal surplus/deficit (% of GDP)	na	4.7	1.7	na
Retail sales	na	na	na	na
Uzbekistan				
Consumer prices	3.8	106.0	600.0	713.0
GDP	-0.7	-0.5	-9.6	na
Industrial production	1.8	1.5	-6.7	-7.0
Agricultural production	6.3	-1.1	-5.0	na
Unemployment (% of labor force)	na	na	0.1	na
Real income	13.2	-10.1	-25.8	31.5
Fiscal surplus/deficit (% of GDP)	na	na	na	na
Retail sales	9.0	-20.7	-44.9	22.0
Belarus				
Consumer prices	4.5	94.1	1,020.0	1,295.0
GDP	-1.9	-1.2	-10.0	na
Industrial production	2.1	-1.0	-9.4	-12.8
Agricultural production	-8.7	-4.9	-10.0	na
Unemployment (% of labor force)	na	0.0	0.5	na
Real income	12.6	0.2	-26.7	-6.4
Fiscal surplus/deficit (% of GDP)	na	na	na	na
Retail sales	14.7	-8.1	-22.0	-13.0
Kazakhstan				
Consumer prices	3.9	90.9	840.0	1,121.0
GDP	0.0	-11.8	-13.0	na
Industrial production	-0.8	-0.9	-13.8	-15.0
Agricultural production	6.8	-10.4	1.0	na
Unemployment (% of labor force)	na	0.1	0.4	na
Real income	11.9	-1.6	-28.8	-13.5
Fiscal surplus/deficit (% of GDP)	na	na	1.5	na
Retail sales	8.6	-15.6	-33.4	-19.3

na = Not available.
Sources: Statkom SNG; Minstat Ukrainy; Goskomstat Rossii; IMF, *Economic Review, Estonia*; Goskomstat Kazakhstana.

Table 2--Quantity index of interrepublic trade, Russian Federation, 1990-92

	1991	1992
	1990 = 100	
Coal	82.5	71.0
Lubricants	55.3	36.3
Cement	70.3	39.0
Water, gas pipes	86.9	56.7
Trucks	105.9	53.9
Tractors	76.1	50.4
Meat & products	53.7	60.6
Milk & products	96.2	37.4
Eggs & products	53.2	25.1
Potatoes	83.9	31.0
Vegetables	81.2	59.4

Average of imports and exports.
Source: Goskomstat Rossii.

inflation. Finally, production falls in **Russia** in the defense industry and construction are a direct result of lower defense procurement and investment spending there. Defense procurement spending was reduced considerably in 1992. Table 4 shows that capital investment has been decreasing for the past few years, with the largest drop in 1992.

Inconsistent Policies Lead To Slow Reform and Stagnation

For more than 2 years FSU governments have implemented policies aimed primarily at preventing open unemployment and stabilizing supplies, trade, and incomes, while simultaneously pursuing other policies consistent with a transition to a market economy.

The main policy consistent with a transition to a market economy is price deregulation. In the **Russian Federation,** most retail and wholesale prices were deregulated on January 2, 1992. Over the course of 1992-93, domestic fuel prices were raised toward world levels and bread prices at the federal level were deregulated in October 1993. Still, many raw material and fuel prices in Russia remain below world levels due to price controls. Moreover, local controls on food prices are still widespread in Russia.

Price deregulation has been slower in the non-Russian countries, save the **Baltics**. Federal controls on retail prices for food sold in State stores continued in **Uzbekistan, Belarus, Kazakhstan,** and a number of other FSU States during 1992-93.

Other policies, aimed at maintenance of employment, State supplies and trade, and living standards have tended to impede the formation of comparatively free and competitive labor, product, foreign trade, and capital markets that are the basis

Table 3--Price changes, Russian Federation, 1991-93

	1991	1992	1993
		Percent change	
Consumer goods, services	93	1,091	900
Agricultural procurements	56	831	750
of which:			
Grain	66	2,347	na
Livestock products	46	526	na
Industrial wholesale	138	1,949	900
of which:			
Fuel industry	123	3,323	2,219
Petrochemical industry	103	2,894	781
Light industry	206	874	597

Source: Goskomstat Rossii.

Table 4--Index of capital investment, Russian Federation, 1991-92

Year	1991	1992
	1990 = 100	
Capital investment	85	51
of which, in:		
Industry	82	58
Agriculture	96	35
Construction	85	31
Transport, communications	68	38
Housing	93	67
Other	86	50

Source: Goskomstat Rossii.

of a market economy. Maintenance of employment despite falling demand and output has contributed greatly to inflation in the FSU countries and has impeded the reallocation of labor resources. Maintenance of State distribution of certain raw materials and fuels, some agricultural commodities, as well as imported goods, makes for extremely thin and monopolistic markets in these goods, rather than a competitive market environment. State-to-State barter, both between FSU countries and in trade with other countries, maintain some level of trade but are inferior substitutes for liberalization of trade in the FSU countries. Finally, despite FSU policies to support real wages by regular increases in the minimum wage, FSU governments currently impose a prohibitively high tax on those who hold currency or bank balances (with nominal interest rates below the rate of inflation) by running inflation rates of 1,000 percent and more. Such high rates of inflation prevent the formation of robust capital markets by causing savings in the FSU economies to be directed abroad (capital flight) or toward State priorities, rather than private investment.

Measures aimed primarily at the maintenance of employment, State supplies, trade, and living standards are often seen as part of a policy of gradual transition to a market economy. These policies have provided some stability in these economies by preventing high levels of open unemployment, preserving some level of State-directed supplies and trade, and by contributing to rising real incomes in **Russia** in 1993. Moreover, it is undoubtedly politically difficult, maybe even unfeasible, for the FSU governments to cut expenditures designed to maintain employment, supplies, and real incomes, particularly when national incomes are falling. However, the above policies do impede progress toward a market economy, and therefore seem to amount to patching up a deteriorating, centrally managed economy in which prices have been deregulated, rather than implementing market transition policies.

The outcome of inconsistent policies has been slow reform and continuing economic decline in the FSU economies. In order to see how these policies impede the transition to the market economy, consider them in more detail.

Maintaining Employment Leads To Severe Inflation and Prevents Labor Reallocation

The main policy measures aimed at maintaining employment and arresting the fall in output in the FSU countries are loose monetary and fiscal policies. Central banks in all the FSU countries have advanced soft credits and many sectors have received direct producer subsidies, all designed to allow enterprises to continue paying wages and maintain production, often despite falling demand and profits.

These policy measures have been successful in preventing large-scale layoffs. In **Russia**, officially registered unemployment in 1993 was less than 1 percent. Other countries of the FSU recorded similar results, though these figures neglect widespread underemployment in idle factories that continue to employ workers. These policies have been far less successful in preventing production falls (table 1). Industrial and agricultural production have declined substantially in every FSU country in the past 2 years.

The most obvious price of preventing open unemployment through such policies has been high inflation. Inflation in the **Russian Federation** in 1993 ran at about 20 percent per month (about 900 percent per year), the same as in February-December of 1992. The money supply (defined as M2) in Russia expanded at about 18 percent per month over the first 9 months of the year. Russia's general-government fiscal deficit (federal and local budgets, plus extrabudgetary funds on a cash basis) in 1993 was about 15 percent of GDP, while in 1992 it was 8 percent of Gross Domestic Product (GDP). Other countries of the FSU suffered from similar maladies, with the exception of **Estonia**, where annual consumer price inflation for 1993 was under 100 percent and the central government budget was balanced (table 1).

But there are other, less obvious costs of maintaining employment through State credits to loss-makers. In a market economy unemployment is not an unabashed evil, for it allows for the reallocation of labor from sectors of low demand to those where labor demand is higher. FSU policies aimed at supporting State loss-makers in order to avert unemployment prevent the reallocation of labor to better-performing industries and to the private sector, where consumer demand is often better served.

These policies also channel scarce capital to loss-makers, rather than to the economically successful firms to which capital would ordinarily flow in private-capital markets. Moreover, continued credits to State industry and agriculture block entry of private producers. Subsidized State firms may price goods at lower prices than unsubsidized private producers, blocking their entry into markets. And subsidized, State-industry demand for inputs drives up prices of inputs higher than they would otherwise be, thus raising costs for private producers.

Last, Central Bank credit policies aimed at supporting loss-making State enterprises severely curtail the effectiveness of privatization policies. A chief purpose of privatization is to establish competitive and entrepreneurial economic actors within the FSU economies by exposing enterprises to the pressures of the competitive market and financial discipline. But when credits are advanced specifically to cover losses, enterprises feel less pressure to make the microeconomic changes necessary to produce more efficiently or restructure in order to avoid bankruptcy. Instead, many enterprises may continue to operate as they have in the past, and most have retained their previous management.

Maintaining State Supplies Prevents the Formation of Competitive Markets

A chief aim of food, agricultural, and industrial policy is to keep priority sectors supplied with food, raw materials, and fuel. The State exerts a great deal of control over the distribution of these supplies through price controls on fuel and raw materials, food procurement policies, and distribution of fiscal subsidies and credits.

A case may be made that continued controls on fuel prices and continued State procurement and distribution of food to northern areas have eased the transition to price levels that reflect relative scarcities for consumers. However, continued State control over a large portion of food procurement, and over raw material and fuel prices in FSU economies, means that these resources are allocated according to State priorities, rather than market demand.

State control over a good portion of supply and distribution of food, fuel, and raw materials has prevented the development of competitive markets in those sectors, and resulted in very thin wholesale markets in many of the countries of the FSU. For instance, wholesale markets for agricultural commodities in **Russia**, as well as other non-Baltic FSU countries, continue to be dominated by State procurement organizations, funded either by the federal budget or (in most cases) by liberal, subsidized credits from the Central Bank. Moreover, local authorities often prevent the export of food from their regions to maintain procurements, despite local prices that are lower than in neighboring regions.

Maintaining State Barter Blocks Trade Liberalization

FSU governments have extensive controls on trade among themselves and with outside countries in an attempt to maintain trade flows without convertible currencies. The failed attempts to preserve the "ruble zone" throughout 1992 and 1993, the huge subsidies advanced by **Russia** to other FSU countries in the form of technical credits for purchases of Russian goods, the negotiation of numerous intergovernmental barter agreements, and the proposed economic union between Russia and **Belarus** are all attempts to restore the economic linkages destroyed by the political breakup of the Soviet Union.

The necessity to carry on trade through State barter agreements results from lack of currency convertibility and State price controls in the FSU. Nonconvertible currencies, in turn, are a result of the reluctance of governments to stabilize their domestic currencies through tighter budget and monetary policies. The **Russian** Government limits exports of fuel and selected raw materials with licenses, quotas, and export tariffs, largely because domestic prices for these commodities are held at controlled prices lower than the world price.

The establishment of trade among FSU countries based on State intergovernmental agreements, quotas, and licenses denies FSU economies the benefits of a liberal trade regime. Free trade creates competition for FSU industries, which in a closed economy enjoy higher prices due to their monopoly position in the market. Free trade would be a major benefit in formerly socialist economies in which many markets are monopolistic or monopsonistic. Free trade could also alter the structure of production so that FSU enterprises could produce products that would be competitive in world markets. Both of these changes would improve the performance of FSU industries and benefit consumers as well.

Attempts To Prevent Falls in Real Wages Despite Falling Labor Productivity Lead To Inflation and Hamper Development of Capital Markets

Minimum wages, government pensions, and State wages are raised regularly by FSU governments in an attempt to prevent erosions of average real wages. This informal indexing has had the positive social effect of supporting real wages in the current economic difficulties. However, stable, or even increasing, real wages when labor productivity is falling has been a highly inflationary policy. Inflation rates of 1,000 percent and more in the (non-Baltic) FSU countries have effectively prevented development of robust private capital markets in the FSU.

Government wage and price policies are undoubtedly partially responsible for the 20-percent rise in real wages in **Russia** since January 1992 (figure 1). This was in the wake of GDP falls of 19.5 percent in 1992 and 12 percent in 1993. Moreover, the relative stability of the ruble/dollar exchange rate in 1992 and 1993, compared to the rate of Russian inflation, has

meant that the U.S. dollar value of the average Russian monthly wage rose from $7 in January 1992 to $105 at the end of 1993. Finally, after falling sharply in 1991 and 1992, per capita consumption of all food products rose in 1993.

Still, it is not possible to attribute the rise in average material living standards in the **Russian** economy since January 1992 exclusively to government minimum-wage policies. The highest wages are paid in the private sector, though government statistics cover this sector poorly. Increased home production of fruits, vegetables, and livestock products accounts for some of the increase in per capita consumption of food products. We know this because, though per capita consumption of food is rising, production of processed foods in Russia continues to fall. Finally, consumption of food and other goods rose in 1993, partly due to increased consumption of (legally and illegally) imported goods.

Government efforts to prevent real wage drops, despite falling labor productivity, have also had quite negative effects for wage earners. The high rates of inflation in the FSU countries represent an immense tax burden on currency holders. Inflationary finance of government budget deficits reallocates real incomes away from wage earners to borrowers, the largest of which is the government. This is because the real value of currency paid in wages depreciates at a rate of about 5 percent per week, while the real value of government debt (financed by currency issue) depreciates at the same rate. High inflation in FSU countries also creates large transaction costs for currency holders as they try to avoid the inflation tax.

High inflation in FSU countries prevents the development of robust, private capital markets. Capital markets reallocate consumer and business savings to investments with the highest yields through bank saving accounts and loans, buying and selling of securities, and so forth. Inflation rates of 1,000 percent or more in FSU countries have either driven domestic savings abroad (capital flight) or reallocated them to government priorities through the inflation tax. By either driving abroad or taxing away the lifeblood of capital markets, high inflation hampers their development.

Figure 1
Real Ruble Wages and Dollar Value of Monthly Wages, Russia, 1992-93

Source: Goskomstat Rossii.

Gradualist Economic Policies Have Yielded High Inflation, Economic Decline, and Slow Reform

No FSU country except **Estonia** has yet to follow the example of Poland in Eastern Europe, which introduced shock therapy to bring inflation rates down quickly through tight monetary policies. Instead, FSU governments seem to see arresting production decreases and preventing unemployment, rather than introduction of markets, as their paramount concern.

The current mix of policies aimed primarily at arresting production declines, combined with some policies consistent with a market transition, is often referred to as a course leading to a gradual (rather than sudden) transition to a market economy. Such gradualist reform policies may in fact mitigate declines in output. **Uzbekistan** and **Turkmenistan**, whose economies changed very little between 1991 and 1993, had some of the smallest declines in industrial production, though very high rates of inflation. But gradualist reform policies fail to address the longer range problems of the statist economy and perpetuate production in enterprises that are loss-makers under new, relative prices and decreased military spending. Moreover, gradualist transition policies impede the micro economic restructuring in the economy as a whole, within firms and in factor markets, all of which constitute the essential goals of the transition to a market economy.

There are some signs that the Chernomyrdin Government in **Russia** now better recognizes the negative effects that gradualist policies have on the Russian economy. The government draft budget in Russia seems to aim at greater fiscal control than anticipated. Years of severe inflation and falling income may yet impel policymakers in Russia and the other FSU countries to gradually replace current policies with more market-oriented ones, such as macroeconomic stabilization, allowance of open unemployment, and trade liberalization, despite the political difficulties of such a choice. Until this is done, Russia and the other FSU countries will likely continue to endure high inflation, economic decline, and slow reform.

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Real Progress in Russian Agricultural Reform May Slow, but Will Not Stop in 1994

The Chernomyrdin Government is likely to continue the slow agricultural reform of the past 2 years in 1994. Reforms have included partial price deregulation and the restructuring of agricultural production, fairly rapid growth of the private sector, and lower State support for agriculture. However, high inflation, State domination of commodity markets, and continued producer subsidies have slowed reforms in agriculture. In the longer run over the next 15 years, the Russian Government is unlikely to be able to hold back substantial privatization of marketing and will likely continue to reduce State support for agriculture. [David J. Sedik]

Over the past 2 years there has been uneven progress in reform of the food and agricultural sector in **Russia**. Progress has been made primarily in the pricing of food, the mix of food products produced, and in the relative size of the private sector. In 1993, reforms in these areas continued. Despite progress, there are a number of areas in which reform might have taken place but did not. This is primarily in the marketing of agricultural production, which remains dominated by State organizations, and State support for agriculture, which remains high compared to agricultural support in the countries of the Organization for Economic Cooperation and Development (OECD).

The outlook for 1994 in **Russia** depends on the policy direction pursued by the government under Prime Minister Chernomyrdin. The formation in January 1994 of a new, more conservative government in Russia was thought to be an ominous sign that progress made to date might begin to be reversed. Many of the policies proposed by the new government in January would have begun to undo some of the progress achieved in Russian agriculture in the past 2 years. However, the Chernomyrdin Government now seems to have successfully resisted many of the demands of the agrarian lobby, and seems destined to continue slow reform with the substantial limitations of the past 2 years.

Agricultural reforms have and will continue to slowly restructure production and change import demand in **Russia** over the next 5-15 years. The large, policy-induced buildup of livestock inventories in the 1970's and 1980's increased FSU demand for grain and grain imports substantially. As State support of livestock operations diminishes over the next few years, livestock inventories and meat consumption should fall, reducing demand for grain and grain imports. Other reforms have barely begun, but, if carried out, are expected to further reduce grain demand. These include privatization of agricultural production, trade, and processing, the parallel phasing out of the State procurement system, and the reduction of automatic credits to agricultural producers. If implemented, these reforms should restore incentives for careful husbanding of resources, thus reducing waste losses substantially and further reducing import demand for agricultural commodities.

The pace of agricultural reform in the next 5-15 years depends substantially on how willing the Chernomyrdin Government is to continue reforms in agriculture and the economy at large. In agriculture the largest impediments to further marketization are the dominant role of the State in agricultural marketing and continued State support for loss-makers within the sector. In the economy at large the largest impediment to further steps toward a market economy is severe inflation.

Movements Toward Market Agriculture Include Price Deregulation and the Restructuring of Agricultural Production

Prices were raised in 1991, and about 90 percent of consumer prices and 80 percent of producer prices were deregulated in

January 1992. The sudden raising of previously subsidized and controlled prices eliminated food shortages in State stores and allowed consumer-demand changes to feed back to farms through prices in many commodity markets. Price deregulation was instrumental in decreasing consumer demand, diminishing savings, and increasing input prices. These three forces caused a restructuring of agricultural production away from livestock products.

Price deregulation changed the character of Russian retail markets nearly overnight from widespread shortages to excess supply. Moreover, deregulation changed the way food is priced in Russia. The elimination of shortages is an outward sign that, for the most part, retail food prices are now set at the level that the market will bear (with the exception of some local price controls). Whereas before price deregulation, there was a considerable wedge between retail food prices and farm-gate prices caused by heavy consumer food subsidies, market pricing of food now allows changes in consumer demand to affect food production.

The price jump of January 1992, combined with a wage policy that allowed consumer income to lag considerably behind price rises, caused a substantial drop in Russian real income in 1992. This generally reduced consumer demand, though demand for staple items fell less than for luxury goods. Among consumer goods, food is more of a staple than durable goods, and among foods, meat products are more of a luxury good than other foods. Therefore, the decrease in income in 1992 reduced consumption of nonfood goods relative to food and cut meat consumption relative to other foods. Food spending as a portion of total consumer expenditures of industrial employees increased from 28.4 percent in 1990 to 38.5 percent in 1992, and meat consumption dropped precipitously, while bread consumption rose.

Declines in average food consumption should not be exaggerated, however. In 1992, Russians still consumed over 2,500 calories per day and continued to eat a diet more similar to those in Northern Europe than to developing countries. In short, there was no threat of widespread hunger in Russia in 1992.

Severe inflation since 1991 eroded the sizable nominal savings consumers and producers had accumulated under the previous system. For consumers, the elimination of savings reduces demand, as do decreases in real income. For producers, inflation severely decreases the stock of working capital, the funds which producers use to make purchases. Thus, producers' ability to purchase inputs, such as labor and raw materials, as well as their ability to invest in repairs to keep up with depreciation, are severely curtailed. Inflation affects crop farms particularly hard, because farms sell their crops only once or twice per year and rely on the revenue from these sales to last them the entire year. FSU livestock farms, particularly beef and, to some extent, pork, face relatively long product-gestation periods (compared to those in OECD countries), and thus require extensive feed expenditures necessitating substantial farm working capital. When this working capital is eroded by inflation, livestock producers substitute their own (lower protein) feed, thus reducing feeding efficiency.

The third main effect of price deregulation was a significant increase in input prices for farms, that previously had been held quite low. Fuel, feed, fertilizer, pesticide, and machinery prices increased significantly in 1992. In fact, input prices for livestock producers increased significantly more than farm-gate prices, leading to a severe price/cost squeeze. Grain producers constitute an exception to this generalization, since they received substantial subsidies and high, State-set farm-gate prices.

This disparity in input and output price increases is a general consequence of liberalization of prices in the Russian economy, for the same phenomenon can be observed in all sectors of the economy. A primary underlying reason for the cost/price squeeze is that prices for raw materials and fuel were held below world and domestic equilibrium prices by greater margins under the previous Soviet regime than were wholesale and retail prices. Thus, when prices were deregulated in 1992, prices of raw materials, fuels, and inputs grew faster than those of outputs throughout the economy.

The key point of the financial crisis in agriculture is that the financial situation of the livestock sector deteriorated considerably more than that of crop producers. In 1992, grain profitability according to Russian calculations, for example, was over 200 percent, while for livestock producers, profitability was minimal (including subsidies). There are a number of reasons for this. First, the State supported grain producers more than livestock-product producers through procurement prices well above production costs and direct producer subsidies. Recall also that the price at which mills purchased wheat were capped through September 1993, providing consumers with a sizable bread subsidy. Moreover, declines in real income caused consumption demand to fall more for luxury goods, such as meat, than for other foods. Finally, crop producers could more easily delay or cut purchases of inputs (due to inflation-induced falls in working capital) than livestock producers, with little initial falls in production. In fact, crop producers have drastically reduced purchases of machinery, fertilizers, insecticides, and other inputs, with little change in yields so far.

The chief input for livestock producers, however, is feed. Livestock producers have cut purchases of mixed feed considerably, substituting lower-priced, unprocessed grain and fodder. These changes have had an immediate and deleterious effect on yields. Moreover, State livestock producers have cut inventories to fit their diminished ability to pay. In addition, former State and collective farms have sold a good part of their inventories to private producers.

This difference in financial impact translated into production shifts within agriculture. The share of agricultural production from livestock producers, using constant prices, dropped from 63.4 percent in 1990 to 60.4 percent in 1993. Using current prices, the share of agricultural production from livestock producers dropped even more, since livestock-product price increases lagged behind those for crops in these years. The disparity in price rises between the two sectors reflects the soft demand for livestock products and continued State support of grain prices.

The reasons for agricultural restructuring lie as much within Soviet agricultural policies of the 1970's and 1980's as within the events of 1992 and 1993. Soviet agricultural policy since the 1970's aimed to increase per capita consumption of livestock products--as a sign of a high living standard. Consumer prices for meat, milk, butter, and other animal products were kept artificially low, presenting an implicit subsidy to consumers who were able to buy these products. Likewise, farm prices for animal products were kept artificially high (compared with world prices converted at the official exchange rate), so livestock producers also received an implicit price subsidy.

Subsidies led to a dramatic increase in Soviet per capita meat consumption from the 1960's to 1990. In 1990, Russians consumed as much meat per capita each year as in Great Britain or Sweden, though per capita income in **Russia** was less than half that in those countries (table 5).

The 1990 level of meat consumption in Russia is likely untenable in the absence of large subsidies or a market economy. For this reason, the decreasing share of agricultural production from livestock products may be viewed as part of a movement toward a structure of production consistent with a market economy.

Table 5--Per capita food consumption and GDP, Russia, Finland, U.S., and Britain

Product	Russia	Finland [2]	U.S.	Britain [3]
	1989 consumption, kilograms			
Meat & products	66 [1]	61	113	70
Milk & products	386	411	263	313
Eggs (number)	297	200	229	193
Fish & products	20 [1]	22	12	12
Sugar	48 [1]	35	28	40
Vegetable oil	10 [1]	7	23	19
Potatoes	106	92	57	101
Vegetables & melons (fresh wgt.)	89	62	117	89
Fruit & berries (fresh wgt.)	37 [1]	70	94	93
Bread & grain products	119 [1]	77	100	90
	1985 U.S. dollars			
Per capita GDP, 1990	5,867	13,378	18,347	12,715

[1] ERS estimate.
[2] 1986 data, except for fish, which is 1985.
[3] Fish is 1986, sugar, potatoes, vegetables, fruit & berries and bread are 1988.

Sources: Goskomstat Rossii, *Narodnoe khoziaistvo SSSR v 1990 g.* (Moscow, 1991), pp. 670–71; Goskomstat Rossii, *Potreblenie naseleniem produktov pitaniia za 1989 god* (Moscow, 1990), pp. 1–6; A. Illarionov, "Byvshie soiuznye respubliki v mirovoi sisteme ekonomicheskikh koorkinat" *Voprosy ekonomiki*, April/June 1992, pp. 122–43.

Rapid Growth of the Private Sector, Albeit With Limitations

The private sector in **Russian** agriculture has grown rapidly in the past few years. The portion of private agricultural production out of total production has nearly doubled from 22 to 38 percent since 1989 (table 6). A quarter to one-half of livestock inventories are now privately owned. Finally, the number of private farms has grown rapidly in the past 2 years (table 7). But, substantial limitations remain on the private sector in Russian agriculture. Private farms still represent a small portion of agricultural production in Russia. Most importantly, marketing of agricultural production is still predominantly in the hands of the State through State procurements.

Table 6--Private agricultural production and livestock herds as share of total, Russian Federation, 1989–93 [1]

	1989	1990	1991	1992	1993
	Percent of production				
Gross agricultural output	22	24	28	34	38
Of which:					
Crops	17	18	23	30.9	na
Livestock	26	28	30	36.1	na
Meat (total)	23.9	24.8	30.6	36.0	40.0
Beef	na	na	17.9	23.3	27.3
Pork	na	na	42.7	51.0	57.3
Poultry	na	na	33.0	33.7	33.4
Mutton & goatmeat	na	na	49.6	55.9	60.1
Milk	23.2	23.9	26.1	31.9	35.6
Eggs	21.2	21.7	22.2	26.1	27.3
Wool	22.2	24.7	28.5	32.6	36.6
Grain	0.0	0.0	0.2	2.1	5.2
Sugarbeets	0.0	0.0	0.0	2.0	3.9
Sunflowerseed	0.0	0.0	0.3	5.8	9.6
Potatoes	58.6	66.2	72.6	78.8	80.0
Vegetables	29.2	30.1	46.7	55.8	65.0
Fruits, berries	52.8	50.5	64.8	69.0	na
Grapes	na	na	12.6	13.0	na
Honey	na	na	na	76.0	na
	Percent of inventories (end of year)				
Cattle	16.2	17.4	19.7	23.0	26.1
Hogs	15.5	18.5	22.0	25.4	28.7
Sheep and goats	25.1	27.7	30.9	36.4	41.9

na = Not available.
[1] Private sector includes private plots and farms.

Sources: Goskomstat Rossii, *Narodnoe khoziaistvo RF*, various issues; Goskomstat Rossii, *Agropromyshlennyi kompleks Rossiiskoi Federatsii v 1992 godu* (Moscow, 1993); Goskomstat Rossii, *Lichnye podsobnye khoziaistva naseleniia RF* (Moscow, 1993); Goskomstat Rossii, *Sotsial'no–ekonomicheskoe polozhenie Rossii 1993 g.*(Moscow, 1994).

The private sector in Russian agriculture is divided into two subsectors made up of production in private plots, gardens, and orchards, and production on private farms. Private plots are the small parcels of land that have been farmed by nearly every farmer and his family on the large (formerly) State and collective farms throughout the Soviet period to this day. In the past few years the maximum size of these plots has been allowed to grow and production on them has increased. Most livestock products, and fruits and vegetables in the private sector are produced on private plots. Private gardens and orchards are owned by these same farmers or urban dwellers, who tend them in their spare time. Private farms, by contrast, are located on property belonging to individual farmers that is separate from (former) State and collective farms. These have grown rapidly since their inception in 1990. Some livestock products and most grain, sugarbeet, and sunflower seed in the private sector are produced on private farms.

Table 8 shows the dominant position of the State in agricultural procurement in **Russia**. These figures should be interpreted carefully, however. The figures are to some extent misleading, because they imply that procurement by State organizations in 1993 is comparable to State procurement in 1991. In fact, financial pressures on State meat, dairy, and vegetable processors, particularly in 1992 and 1993, have forced these organizations to be more cost- and quality-conscious. For example, decreasing demand has forced meat processors to market their products more aggressively and pay more attention to quality. These improvements have diminished the wastefulness and poor quality traditionally associated with State-procured commodities.

The changes in quality and efficiency of State processors are an improvement over past behavior. However, they are limited, for State processors still do not act exactly like private processors in market economies. Feed mills, for example, operate at low levels of capacity utilization, since demand for mixed feeds has dropped considerably. Nevertheless, these processors have not gone bankrupt, but continue to be supported by State credits. The same can be said for meat, dairy, and other processors.

Moreover, the significance of State procurements across commodities is probably not uniform. State procurement of grain probably suffers from more of the same maladies associated with State procurement in the Soviet period than that for livestock products. Grain is procured by one State procurement organization, *Roskhleboprodukt*, which is divided into federal and local levels. Each farm generally sells to one procurer. There was very little competition in grain markets in 1993. This arrangement is much more similar to the way that State procurements were made in the past. In the livestock sector, however, large farms pick and choose their buyers according to price, a definite change from the past.

Agricultural Policy Reforms

The dissolution of the Supreme Soviet by President Yeltsin in October 1993 paved the way for the return to government of reformist Gaidar as Minister of the Economy. Allied with Minister of Finance Fedorov, Gaidar attempted to execute a reformist agricultural policy in order to bring real economic reform to the countryside. The implementation of these policies, scheduled for the fall of 1993 and 1994, might well have significantly deepened reform in **Russian** agriculture.

Table 7--Private sector in FSU agriculture

Republic	Number of private farms on January 1		Area of private land January 1, 1993				January 1, 1993 area as a portion of:	
	1993	1994	Private farms	Private plots	Other	Total	Agricultural land in agricultural enterprises	Plowlands in agricultural enterprises
	---1,000 units---		---------1,000 hectares-------				*Percent*	*Percent*
Azerbaijan	0.2	0.4	7.8	na	na	na	na	na
Armenia	243.0	292.3 [1]	486.0	63.1	6.3	555.4	46.3	138.9
Belarus	2.0	2.7	38.0	847.6	71.0	956.6	10.3	15.9
Kazakhstan	8.5	15.6 [1]	3,502.0	194.7	184.3	3,881.0	2.2	11.2
Kyrgyzstan	8.6	18.3	378.4	125.0	10.8	514.2	5.2	36.7
Moldova	0.5	3.1	1.5	306.4	18.3	326.2	13.0	19.2
Russian Federation	183.7	269.9	7,715.4	7,049.0	1,683.7	16,448.1	7.8	12.7
Tajikistan	0.004	0.008 [1]	0.1	54.8	1.3	56.2	1.3	6.2
Turkmenistan	0.1	0.1 [1]	1.1	95.9	5.4	102.4	0.3	7.9
Uzbekistan	5.9	6.9	47.2	491.0	13.2	551.4	2.2	13.4
Ukraine	14.4	27.7	288.0	4,400.0	426.2	5,114.2	13.2	16.4
Total	466.9	637.0	12,465.5	na	na	na	na	na

na = Not available.
[1] October 1, 1993.
Sources: Statkom SNG, *Statisticheskii byulleten*, no. 15, 1993, p. 104; no. 3, 1994, p. 14.

Table 8--Marketing channels as a percentage of total marketed production by commodity, Russian Federation

Commodity	1991	1992	1993 [1]
		Percent	
Grains			
State & cooperative	63	64	76
Market	14	13	11
Other [2]	24	23	13
Potatoes			
State & cooperative	70	61	44
Market	18	22	38
Other	12	17	18
Vegetables			
State & cooperative	84	73	72
Market	11	15	20
Other	5	12	8
Cattle, poultry			
State & cooperative	84	80	81
Market	7	8	7
Other	9	12	12
Milk & products			
State & cooperative	98	96	97
Market	na	na	na
Other	na	na	na
Eggs			
State & cooperative	94	86	91
Market	4	9	6
Other	2	5	3

na = Not available.
[1] January – September.
[2] Other includes barter, direct sales, etc.
Source: Statkom SNG, *Statisticheskii byulleten* no. 24.

The agricultural policy decrees issued after Gaidar's return to government extended and deepened the land and pricing liberalization policies of 1992. These included a watershed (October 27, 1993) decree on land policy which finally explicitly allowed for the buying and selling of land and affirmed the right of farmers to leave State and collective farms with land holdings. This legislation could pave the way for the formation of a land market in Russia. However, the imposition of a sizable value-added tax (VAT) on land sales in a December 22, 1993, Presidential Decree may substantially limit the extent to which a land market develops. Moreover, the right of local land committees to grant or deny certificates of ownership and approve or deny transfer of ownership may substantially limit the effectiveness of the decree in the formation of a genuine land market. According to the decree, local land committees can refuse to grant a deed of private ownership to landholders or purchasers who intend to change the use of the land.

Another policy reform that furthered the price deregulation of 1992 was the elimination of import subsidies. According to a Council of Ministers Decree of April 1, 1993, import subsidies were to be eliminated by the end of 1993. A Ministry of Finance letter reiterated this policy and stated that federal import subsidies would be eliminated on January 1, 1994. The significance of this decree, if carried out, can hardly be underestimated. Import subsidies in 1992 were equivalent to 13.8 percent of GDP and were the primary reason why table 9 shows such a large jump in food subsidies in 1992. Three-quarters of the food subsidies in 1992 were for imports.

The third important agricultural policy decree extended price deregulation to bread prices by eliminating sizable federal subsidies to flour mills as of October 1, 1993. The State had been subsidizing the price at which flour mills purchase wheat by making up the difference between a controlled price of 12,000 rubles and the price at which mills would buy wheat. In July 1993, Russian third-grade hard wheat was procured at $54.00 per ton (about half the world price), but sold to mills for $12.00 per ton. This mill subsidy was passed on to consumers, meaning that they actually paid a price for bread considerably below costs of production. The State first raised the guaranteed price to mills and then eliminated the guaranteed price altogether.

The final important agricultural policy decree was potentially the most far reaching, though the least likely to be implemented. A Presidential Decree "On the Liberalization of Grain Markets in Russia" was issued on December 24, 1993. The grain liberalization decree, if implemented, would reduce the role of State procurement in Russian commodity markets. The State was to be responsible for procurement of commodities only for the military, strategic reserves, and selected regions. The decree stipulated that State procurements were to be made at market prices, rather than above, them as the State had done in 1993. The decree also outlawed any local attempts to limit trade in grain. Local administrations have sought to limit export of food outside of their region so as to prevent the export of local subsidies. The decree also stipulates that State grain procurement, as well as processing and baking enterprises, are to be privatized within 3 years.

The State Continues Generous Support of Agriculture

State support for food and agriculture seems to have dropped significantly in 1993. Table 9 shows calculations of explicit State support for food and agriculture for the past 6 years. If these calculations are correct (and they are certainly less than certain, particularly for the past 2 years), Russian support for food and agriculture as a percent of GDP rose dramatically in 1992, primarily due to increased food-import subsidies, and fell substantially in 1993.

The level of Russian explicit food and agricultural subsidies was high compared to other developed countries. Table 10 shows the share of total agricultural transfers out of total GDP for the OECD countries. In comparison to these countries, Russian support for agriculture seems generous. The OECD estimates are actually more comprehensive than the estimates

Table 9--Explicit food and agricultural subsidies, Russian Federation, 1988-93

Type of subsidy	1988	1989	1990	1991	1992	1993
			Billions of rubles			
Food subsidy						
Consumer price	27.5	28.6	39.5	80.0	2,614.4	7,049.9 [1]
Subtotal	27.5	28.6	39.5	80.0	2,614.4	7,049.9 [1]
Agricultural subsidies						
Producer price	20.1	22.6	17.2	0.0	204.3	70.2
Farm investment	8.2	8.1	7.1	16.4	204.3	435.1
Inputs	0.9	0.1	0.0	0.0	na	23.3
Operational expenditures	2.1	2.2	2.2	2.4	na	254.6
Fuel and energy	4.5	5.0	5.0	1.3	na	26.0
Interest rate	na	na	na	3.0	na	1,233.6
AKKOR	na	na	na	1.0	na	22.2
Other or unclassified	na	na	na	na	408.5	138.1
Subtotal	35.8	38.0	31.5	23.1	817.1	2,203.1
Total subsidies	63.3	66.6	71.0	103.1	3,431.5	9,253.0
Nominal GDP	540.0	573.0	644.0	1,300.1	18,093.0	170,833.3
State support as percent of GDP	11.7	11.6	11.0	7.9	19.0	5.4

na = Not available.
[1] ERS estimate based on 1992 portion of total subsidies.
Sources: World Bank, *Food and Agricultural Policy Reforms in the former USSR* (Washington, 1992), p. 218; Goskomstat Rossii, *Rossiiskaia Federatsiia v 1992 godu* (Moscow, 1993), p. 17; Russian Ministry of Agriculture.

in table 9, so that the Russian estimates can be taken as a lower bound for comparison with the OECD figures.

There are important qualifications to this comparison. First, the subsidy bill in **Russia** is larger, partly because the agricultural sector there is larger. In Russia 5.4 percent of GDP for agricultural subsidies was directed to a sector producing about 20 percent of national income. In the OECD countries 2.1 percent of GDP was directed to an agricultural sector producing about 5 percent of GDP. The ratios of subsidies to value of agricultural output, both expressed as percentages of a measure of national income, are not that different (0.27 for Russia, 0.42 for OECD countries). Second, the Russian subsidies in table 9 were granted primarily to consumers as food subsidies, which did not augment the income of Russian agricultural producers. In the OECD countries, however, agricultural subsidies went to producers, adding substantially to their incomes.

The effect of large subsidies to agriculture in **Russia** has been to mitigate the restructuring that would be caused by complete price decontrol. As an example of the significance of these subsidies, consider that the profits recorded by Russian agricultural organizations in 1993 were to some degree an illusion created by subsidies. Without subsidies, livestock producers in aggregate in 1993 would have been in the red by billions of rubles.

New Government Makes Implementation of the Fall Reforms Highly Unlikely

Political developments since the December 1993 elections in Russia resulted in the formation of a significantly less reformist government under Prime Minister Chernomyrdin and an impending reversal of agricultural reform policies formulated last fall during former Deputy Prime Minister Gaidar's brief return to government.

In January the new government set a course aimed at halting the agricultural reforms decreed in the fall, increasing subsidies and credits to priority sectors of the economy (including agriculture) and introducing price controls. However, by March it appeared that though a significant portion of procurement of agricultural commodities in 1994 would continue to be in State hands, State support for agriculture in 1994 would be less than first believed, and talk of price controls had died down.

The new government under Prime Minister Chernomyrdin wasted no time in proposing fiscal and monetary policies toward support of State industry and agriculture. Though there is yet no final budget, a February 23, 1993, government decree issued by Chernomyrdin proposed that 1994 budget support for the agro-industrial complex be held at the actually dispensed real level of 1993 (9.3 trillion rubles), plus repayment of 1993 State arrears (2.7 trillion rubles, indexed as well), plus 4 trillion rubles. In addition to these new, specifically fiscal allocations, the decree mentions issue of 5 trillion

Table 10--Share of total agricultural transfers in GDP, OECD countries, 1988-92

Country	1988	1989	1990	1991	1992
			Percent		
Australia	0.4	0.4	0.6	0.6	0.5
Austria	2.7	2.2	2.5	2.5	2.3
Canada	1.8	1.6	1.6	1.8	1.6
European Community [1]	2.2	1.9	1.9	2.0	2.0
Finland	4.7	4.3	4.4	4.7	4.1
Japan	2.4	2.3	2.1	1.9	2.0
New Zealand	0.5	0.3	0.2	0.2	0.1
Norway	3.9	3.7	3.9	3.8	3.7
Sweden	1.8	1.5	1.4	1.6	1.3
Switzerland	3.1	2.7	2.6	2.7	2.4
United States	1.4	1.3	1.3	1.4	1.5
OECD average [2]	2.1	1.8	1.9	2.1	2.1

[1] Includes ex-GDR in 1990, 1991 and 1992.
[2] Excludes Iceland and Turkey.
Source: OECD, *Agricultural Policies, Markets and Trade. Monitoring and Outlook 1993* (Paris, 1993), p. 161.

rubles of Central Bank credits for agricultural producers and processors in the first two quarters of 1994.

There is every reason to doubt that these budget and credit proposals will be carried out in practice. In 1993 the actual budget and credit support for agriculture fell far short of original intentions when indexed for inflation. Moreover, the budget must still pass the lower and upper houses of parliament. Finally, the budget will likely be amended or revised, as it was in 1993.

Nevertheless, to give an idea of how significant these sums are, when measured against a rough estimate of GDP for the whole of 1994 (1,691 trillion rubles), 26 trillion rubles (9.3+2.7+4+5+5) is less than 2 percent of GDP. This estimate assumes no indexation. In 1993, actual budget outlays for the agro-industrial complex were about 1.5 times the original intentions in nominal terms. Applying this ratio to the original suggested numbers for 1994 (26 trillion rubles multiplied by 1.5) gives a total equal to about 2 percent of forecast GDP.

In the short run, the policies likely to be pursued by the current government will ensure the survival of a State agricultural procurement and distribution system in **Russia**. One that has proven to be extraordinarily wasteful, has discouraged privatization, and has created an immense fiscal burden. Moreover, State subsidies and soft credits, though probably less significant than in 1993, will delay the healthy restructuring, which has been the chief achievement of market reforms in agriculture up to now.

In the longer run over the next 5-15 years, the **Russian** Government is fighting an uphill battle in trying to hold back reform in agriculture. Price deregulation has already caused some restructuring of production. As the real value of government support of agriculture diminishes over the next few years, production restructuring will continue. Moreover, if severe inflation continues and budget revenues decrease in the next few years, State procurement organizations will find their job more and more difficult. Over the next 5-15 years, then, at least a large portion of commodity marketing will fall to the private sector.

Demand for Purchased Inputs Continues To Decline: Yields Yet To Be Significantly Affected

Under the old, command economy, input deliveries were divorced from demand. State-mandated production levels and inputs were distributed on the basis of allocation and crop-production targets. With the breakup of the USSR and the move toward market economies in the FSU countries, market forces will increasingly determine the demand for purchased inputs. Even with the incomplete introduction of some market-oriented measures, farmers have decided that the price of many inputs exceeds the value of their marginal product, and demand for inputs continues to fall. Yields have not significantly declined, despite large decreases in input use, demonstrating that administrative fiat under a command economy leads to excess and inappropriate input use. Fertilizer deliveries to Russian farms in 1993 were likely only about a quarter of their 1987 peak. [Peter S. Liapis and Yuri Markish]

The move toward a market economy in the FSU, although far from complete, is forcing major adjustments in the agro-industrial complex. Production of agricultural inputs continues to decline as producers adjust to market forces. The precipitous decline in input use is not necessarily all "bad," as scarce and valuable inputs are moved to uses with higher productivity value. Indications are that inputs in the FSU under the old command system, in which price signals were missing, may have been over used by Western standards. Hence, reallocation of resources in response to price signals is rational.

However, markets have not been totally liberalized and distortions continue. In most of the FSU countries, the agricultural sector is still subsidized. For example, in 1993, the **Russian** Government declared that 30 percent of expenditures on fertilizers and chemicals would be subsidized. This subsidy (along with others) is scheduled to continue in 1994. Similarly, the **Uzbek** Ministry of Finance plans to provide interest-free loans in 1994 to *Uztadbrikorbank* so that farmers can purchase machinery, fuels, and lubricants. The **Ukrainian** Government plans to provide farmers 2 trillion karbovanets ($159 million) in early-spring 1994 for fuel purchases. This is in addition to the $2.9 million provided earlier to purchase spare parts, and about $32 million to buy fertilizers, and $159,000 to buy fuel.

In **Russia,** State subsidies contributed over 40 percent of farm profits. Hence, it is too early to determine whether the current input-use level is optimum. Since subsidies are continuing, input use, even at the current low levels, may be excessive relative to the input-output relationships in Western countries. On the other hand, as market forces develop further, along with institutions that facilitate the market economy, input use may increase. However, it is unlikely that input usage will reach the levels attained during the late 1980's.

Fall in Demand Causes Steep Decline in Production of Inputs

Since the breakup of the USSR the industrial component of the agro-industrial complex has undergone severe retrenchment. This shrinkage continued in 1993 and is expected to continue into 1994. For example, in **Russia,** 1993 fertilizer production was 22 percent lower than in 1992, which in turn was 63 percent below 1991 levels. Fertilizer production in 1993 was less than half the 1988 peak. Similarly, production of plant protection products--insecticides, herbicides, fungicides--fell 41 percent relative to 1992, while production of agricultural machinery declined more that 20 percent. Other FSU countries also experienced similar production declines.

Input prices continued increasing at a very fast pace during 1993. In **Russia,** the price index for all agricultural inputs stood at 49,500 (1986 = 100) in 1993, more than 21 times the 1992 level. Similarly, the price index for mineral fertilizers was 20,500, more than eight times the 1992 level, while the index for tractors stood at 46,500, 22 times above the 1992 level.

Prices of agricultural commodities also increased substantially during 1993. But, output prices increased at a slower rate than input prices, continuing the cost/price squeeze on producers. In **Russia,** the output price index for all agricultural commodities was 15,000 in 1993 (1986 = 100), a twelve-fold increase over 1992.

Given the tremendous jumps in the price of inputs compared to farm product prices, effective demand for inputs, measured by deliveries to farms, continued its downward trend in 1993. In **Russia,** reported fertilizer deliveries fell 29 percent relative to 1992, pesticide deliveries declined about 40 percent, and deliveries of agricultural machinery dropped (tractors, 61 percent, and grain combines, 57 percent).

Another factor leading to a drop in input demand is the liquidity problem experienced by the agro-industrial sector in 1993, and the associated reduction in purchasing power due to the high inflation tax. With declines in administrative discipline and underdeveloped systems for clearing transactions, agricultural producers are not receiving payment for products they delivered to the State, and they in turn are not paying their debt to the agricultural-input-production sector. Coupled with falling demand, factories operated substantially

below capacity and a few stopped operations for significant periods of time during the year.

Interestingly, agricultural output has not declined nearly as much as one would expect, given the precipitous drop in input deliveries. Hence, the agricultural production component of the agro-industrial complex seems to be weathering the storm better. Despite the drastic drops in deliveries of inputs during the last 3 years, favorable weather and growers' more judicious use of inputs have mitigated possible yield declines. Coupled with State subsidies, many agricultural producers remained profitable as they substituted less expensive inputs.

Market reforms are forcing agricultural producers to become more cognizant of price developments for inputs and outputs. Since input prices are rising faster than output prices, demand for inputs is declining. But, the productivity of applied inputs increased. Preliminary indications are that the "profitability" of grain production in **Russia** was 128 percent in 1993, while profits in animal breeding were 15 percent. The figure for grain production indicates that revenue was more than double production cost in 1993. Because of subsidies and payment delays, one should not interpret these data as representing the well-being of the farm sector. Rather, they serve as an indicator of relative changes over time.

Are these developments sustainable? Can current yields be maintained in the face of continuing decline in input deliveries? Are the recent developments in yields due to favorable weather, or is the productivity of inputs increasing? How long will this trend continue? Some argue that with increasing costs, farmers are becoming more efficient and that factor productivity is increasing, mitigating the effects of lower input use. Others argue that the data on input deliveries is misleading. Input use may not have declined as much as deliveries would suggest because farms had stockpiled inputs. Still, with deliveries down 75 percent in 8 years, usage has fallen sharply. Furthermore, yields have been buttressed by very favorable weather, residual soil fertility, and declines in land use, which probably involved more marginal lands. They argue that, as input inventories decline and normal weather patterns return, yields will plummet in the face of reduced input deliveries.

Undoubtedly, both lines of argument have some merit. Compared to the old, command economy, market discipline should improve input allocation and productivity. On the other hand, market forces have not been fully liberalized, distortions still exist, and institutions are not sufficiently developed to allow price signals to be transmitted fully and accurately. And, although budget constraints play a role in input allocation decisions for the first time, it is not clear, given State subsidies, how binding the constraint is.

Fertilizer Production and Deliveries Continue Downward Path...

Production declined in most of the FSU countries, partly because of higher input cost, as fertilizer producers increasingly faced world prices for energy and other inputs that raised production costs. In addition, export demand for fertilizer declined in 1993, and, high fertilizer prices reduced demand by the agricultural production sector. In **Russia**, fertilizer production declined 22 percent in 1993, while production in **Ukraine** fell almost 24 percent below the low 1992 levels, and in **Kazakhstan** output was 65 percent lower than in 1992. Developments in the other FSU countries were similar.

Deliveries (deliveries, demand, and use are used interchangeably; post-reform deliveries mostly imply demand, while prereform deliveries were just that) to agriculture also dropped precipitously. It is estimated that **Russian** agricultural producers received about 4 million tons of fertilizer in 1993, 29 percent below 1992 levels (table 11). It is difficult to determine fertilizer demand for 1994 because of the liquidity problem. The **Russian** Ministry of Agricultural estimates that only 600,000 tons of fertilizer have been applied since last autumn, about 63 percent less than applied during the same period in 1993. If this trend continues, fertilizer use in 1994 will be less than in 1993, maintaining the pattern of falling use in the 1990's. Similarly, deliveries in **Ukraine** also dropped in 1993, and despite the government's stated intentions to subsidize fertilizer purchasers, applications per hectare will likely be less in 1994 than in 1993.

Fertilizer prices jumped tremendously in the **Russian** Federation. The wholesale price for mineral fertilizer was 164.7 rubles ($262.51) per ton in 1989. By 1991, the price had jumped 154 percent to 417.87 rubles per ton. Despite the subsidies, or maybe because of the subsidies, price increases accelerated during 1993. The price index of mineral fertilizers in 1993, at 20,500, was 8.5 times the 1992 level. On the other hand, the output price index for all agricultural commodities during the same period stood at 15,000, 12 times the 1992 level. Output prices for some fertilizer-intensive crops also increased, but at a slower rate. The price index for sugarbeets jumped almost ninefold between 1992 and 1993, while that for potatoes and grains jumped fivefold. These developments in relative prices, if they continue in 1994, would suggest that demand for fertilizer should continue to decline unless productivity of fertilizer increases.

Other variables that affect fertilizer demand also moved in a direction that tends to lower demand for fertilizer. In **Russia**, planted area fell 3 percent in 1993, and the Ministry of Agriculture expects a further drop in 1994. Furthermore, actual subsidies to purchase fertilizers were considerably less than were allocated by the government. In 1993, the **Russian** Government planned to provide 110 billion rubles ($117.8 million) to help farmers purchase fertilizers but only provided 48 billion rubles ($51 million), 44 percent of the planned amount. During this period of declining demand, fertilizer output has fallen relatively less than domestic demand. During the early- to mid-1980's, over 70 percent of the fertilizer produced in **Russia** was delivered to agriculture. By 1992 and 1993, only half of the fertilizer produced in Russia was delivered to agriculture. The rest was exported, negating the argument by many in **Russia** that fertilizer use was down because fertilizer was in short supply.

In 1992, **Russia** imposed export quotas and licensing requirements on fertilizer in order to stem its export flow. For 1992, the export quota for fertilizer was 4.2 million tons (a little more than 1 million tons less than the amount delivered to

Table 11--Availability and use of mineral fertilizers, selected FSU countries [1]

Year	Production				Deliveries				Application rate			
	Total [2]	Nitrogen	Phosphate	Potash	Total [2]	Nitrogen	Phosphate	Potash	Total [2]	Nitrogen	Phosphate	Potash
	1,000 tons								*Kilograms per hectare*			
FSU												
1961-65 avg.	5,143	1,996	1,776	1,748	4,500	1,618	1,612	1,260	20.4	7.3	7.3	5.7
1966-70 avg.	10,371	4,210	2,985	3,177	8,449	3,520	2,694	2,228	38.3	16.0	12.3	10.1
1971-75 avg.	17,876	7,248	4,483	6,138	13,802	6,209	3,882	3,703	62.2	28.0	17.5	16.7
1976-80 avg.	23,328	9,283	6,128	7,910	18,064	7,632	5,287	5,137	80.9	34.2	23.7	23.0
1981-85 avg.	29,294	12,573	7,520	9,193	22,156	9,790	6,540	5,817	98.8	43.7	29.2	26.0
1986-90 avg.	34,827	14,860	9,644	10,320	25,449	10,701	8,293	6,447	113.9	47.9	37.1	28.9
1990	31,700	13,200	9,500	9,000	21,639	8,738	7,815	5,081	97.5	39.4	35.2	22.9
1991	30,100	12,100	9,200	8,800	20,000	7,700	7,500	4,800	94.6	38.2 [3]	34.2 [3]	22.2 [3]
1992	20,500	8,200 [3]	6,300 [3]	6,000 [3]	10,000	3,900 [3]	3,800 [3]	2,300 [3]	50.0	20.2 [3]	18.1 [3]	11.7 [3]
1993	na	na	na	na	na	na	na	na	na	na	na	na
Russian Federation												
1981-85 avg.	14,605	6,836	3,579	4,188	10,943	4,533	3,524	2,882	82.8	34.3	26.7	21.8
1986-90 avg.	17,744	8,137	4,938	4,667	12,976	5,293	4,592	3,088	98.9	40.3	35.0	23.5
1990	15,979	7,186	4,943	3,848	10,828	4,217	4,335	2,275	83.4	32.5	33.4	17.5
1991	15,042	6,880	4,275	4,086	10,102	3,967	3,761	2,374	79.7	31.6	29.1	19.0
1992	12.300	5.815	3.015	3.470	5.510	2.622	1.540	1.348	44.2	21.0	12.4	10.8
1993	9.600	4.700	2.300	2.600	3,900	2,200 [3]	1,000 [3]	0.700 [3]	32.0 [3]	15.0 [3]	9.0 [3]	8.0 [3]
Ukraine												
1981-85 avg.	4,788	2,966	1,523	291	4,426	2,079	1,104	1,240	134.1	63.0	35.5	37.6
1986-90 avg.	5,340	3,420	1,680	220	4,837	2,110	1,369	1,356	148.9	64.9	42.0	41.9
1990	4,800	3,000	1,600	100	4,263	1,807	1,452	1002	136.4	57.5	45.7	33.2
1991	4,200	2,800	1,300	100	3,843	1,662	1,088	1,091	123.0 [3]	53.0 [3]	34.0 [3]	36.0 [3]
1992	3.300	2.540	640	120	1,540 [3]	665 [3]	435 [3]	440 [3]	37.0 [3]	16.2 [3]	10.0 [3]	10.8 [3]
1993	2,500	1,925	475	100	1,000	520	280	200	24.0	12.0	7.0	5.0
Kazakhstan												
1981-85 avg.	1.429	404	1,017	8	822	355	434	33	23.1	10.0	12.2	0.9
1986-90 avg.	1,644	439	1,194	11	957	369	561	28	26.8	10.3	15.7	0.8
1990	1,655.9	431.0	1,211.2	12.6	589	237	342	10	16.6	6.7	9.7	0.3
1991	1,516.1	410.2	1,093.9	11.9	531	235	285	11	14.9 [3]	6.6 [3]	8 [3]	0.3 [3]
1992	880.0	239.0	633.0	8.0	450 [3]	200 [3]	242 [3]	8 [3]	11.9 [3]	5.6 [3]	6 [3]	0.3 [3]
1993	304.0	84.0 [3]	215 [3]	5.0 [3]	226 [3]	100 [3]	121 [3]	5 [3]	8.0 [3]	3.6 [3]	4.1 [3]	0.3 [3]

na = Not available.
[1] 100-percent nutrient weight-basis.
[2] Totals include trace elements.
[3] Estimates.
Sources: Goskomstat SSSR; Goskomstat Rossii; Minstat Ukrainy; Goskomstat Kazakhstana; Statkom SNG.

agriculture). For more than 2 months in the spring of 1993, Russia banned fertilizer exports by enterprises and regions that account for about 35 percent of total fertilizer exports. The government commission for crop sowing and harvesting decided to halt exports of mineral fertilizers by Russian enterprises from March 10 to May 3, 1994. The restriction, however, does not apply to exports under State order. In addition, export taxes varying between $6.50 to $13 per ton were imposed. As a result of the additional **Russian** exports, the United States and the European Union (EU) imposed import restrictions. The United States imposed a 68-percent tax on carbamates imported from Russia, while the EU has imposed a quota and minimum price restriction on import of Russian ammonium nitrate. The quota is for 100,000 tons, and the minimum price is $115 per ton, $20 per ton higher than the domestic EU price.

Official **Russian** figures indicate that exports of nitrogen (at around 4.6 million tons) in 1993 were down 43 percent, and potash exports (at 2.7 million tons) were down 31 percent compared to 1992. Phosphorous exports (137,000 tons) and mixed fertilizer exports (3.2 million tons) were up 6 percent and 51 percent respectively compared to 1992.

In **Russia**, the average fertilizer-application rate peaked at almost 107 kilograms per hectare on all crops in 1987, and declined 70 percent to 32 kilograms per hectare in 1993. Similar drops in application rates occurred on specific crops shown in table 12. The rate of decline in application rates has slowed in the last several years, and, in **Russia** sugarbeet application rates rebounded in 1993. However, area receiving fertilizers declined in 1993, indicating that producers are making choices on how to allocate scarce resources. Fertilizers are likely being cut back on marginal land or on crops with relatively small response to fertilizer.

Yield Declines Mitigated

Yields, however, have not suffered the precipitous decline one would expect, given the tremendous drops in fertilizer use. For example, in **Russia**, potato yields were the same in 1992 as 1987, despite the 59-percent drop in fertilizer application, while yields for grains (except corn) were higher in 1992 than 1987. Of course, fertilizer use is only one factor among many that determine yield. The data suggest that with reforms and partial price liberalization, **Russian** producers are more cognizant of the cost of fertilizer and are not prone to waste it. Fertilizer that is used is becoming more productive. For example, in 1985, the average product of 1 kilogram of fertilizer was 15.9 kilograms of corn, whereas in 1991 the average product of fertilizer was 19.9 kilograms of corn. Similarly, the average product of fertilizer in 1985 was 49 kilograms of sugarbeets or 23.5 kilograms of potatoes, whereas in 1992 the average product of fertilizer was 62 kilograms of sugarbeets or 85 kilograms of potatoes. Of course, this is a rough measure and is not intended as a measure of the marginal productivity of fertilizer. Many factors determine yield, including weather and use of other inputs, however, the above is a rough measure of approximate payoffs from careful use of fertilizers.

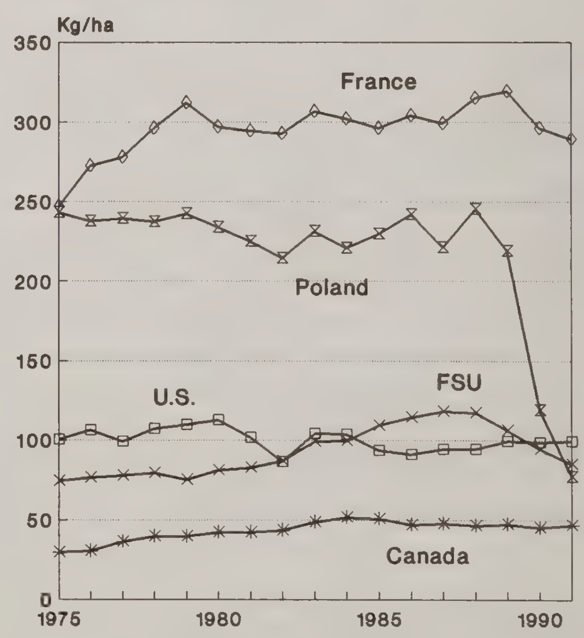
Information from the United States and EU on fertilizer use and yields provide some perspective on FSU usage prior to the recent changes in the input sector. Figure 2 shows fertilizer use per unit of land in several countries from 1975 to 1991. Among the countries depicted, there appear to be two groups: land-abundant countries (United States, Canada, and the FSU) that use relatively less fertilizer and other countries

Table 12—Fertilizer use on selected commodities, Russian Federation

Year	Application rate: All crops	Grain (ex. corn)	Corn	Sugarbeets	Potatoes
	Kilograms per hectare				
1985	96	69	160	426	295
1986	104	84	248	425	309
1987	107	87	155	456	323
1988	105	88	164	450	319
1989	96	76	169	408	290
1990	83	66	148	356	253
1991	80	63	141	341	241
1992	42	33	74	285	127
1993	32	na	na	360	na

na = Not available.
Source: *Vestnik Statistiki.*

Figure 2
Fertilizer Use, FSU and Selected Countries



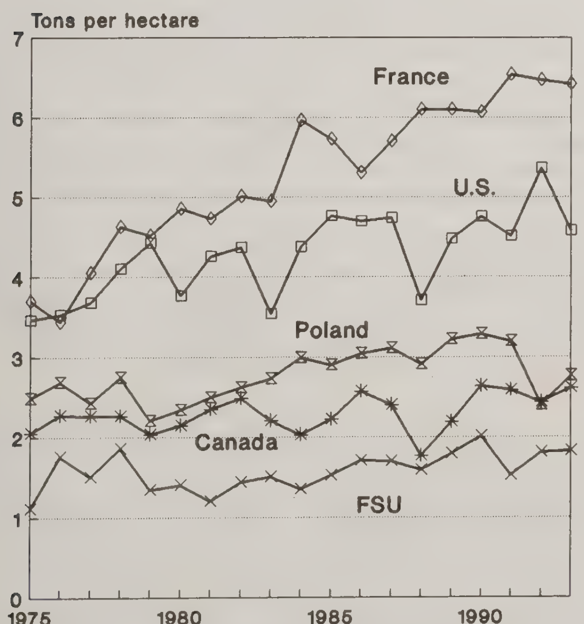
Source: FAO Agrostat.

that do not have abundant land. France utilizes considerably more fertilizer, but its agricultural sector employs intensive agricultural production technologies, and as a member of the EU, agricultural output prices are substantially above world levels. The longrun goal for the FSU should not be to achieve fertilizer levels of the EU, rather, application levels should be more comparable to the extensive agricultural production technology of the United States and Canada. Figure 2 illustrates that fertilization rates for the FSU, until 1991, were comparable with those of extensive agricultural countries. The figure also shows that with the move to a market economy, fertilizer use in Poland dropped considerably, indicating that current developments in the FSU are not unique.

Until recently, the problem was not only with the quantity of fertilizer used, but also with the quality of the material used and with application; i.e., when to apply, where to apply, and how to apply. Figure 3 shows that the FSU did not get a very big bang from its fertilizer use. Looking at yields of all grains, the FSU was consistently below the two other countries, including Canada, even though Canada used less fertilizer. The figure also shows that cereal yields remained relatively constant in the 1990's, despite the precipitous drop in fertilizer use.

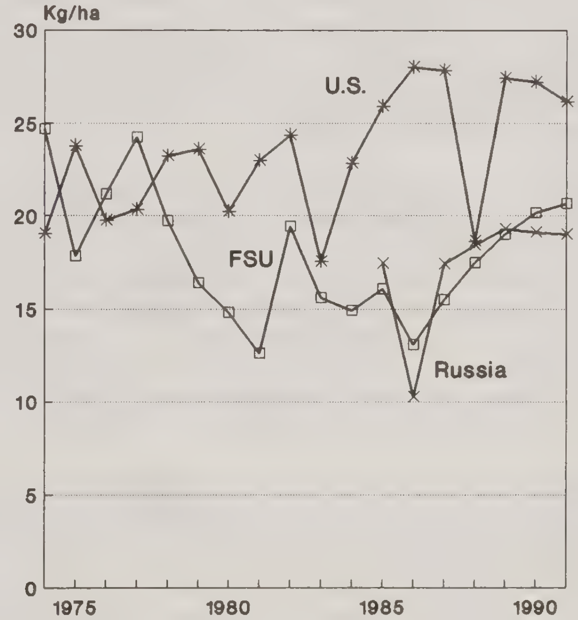
Similar stories are illustrated by corn and cotton. Between 1974 and 1991 the average product of fertilizer was 23 kilograms of corn in the United States, but only 18 kilograms in the FSU (figure 4). It should be noted, however, that between 1990 and 1992, corn output per unit of fertilizer input increased in **Russia**, from 19 kilograms to 21. In the case of cotton, average yields in the FSU are higher than those in the United States (figure 5). The figure for cotton is somewhat misleading because it compares all U.S. cotton, which includes dryland cotton, versus cotton production in the FSU, which is irrigated. Nevertheless, when comparing cotton-output-per-unit of fertilizer used, the deficiencies in FSU agriculture are once again manifested. Between 1974 and 1991 the average product of fertilizer was 15 kilograms of cotton in the United States, while in the FSU the average

Figure 3
Total Cereal Yield, FSU and Selected Countries



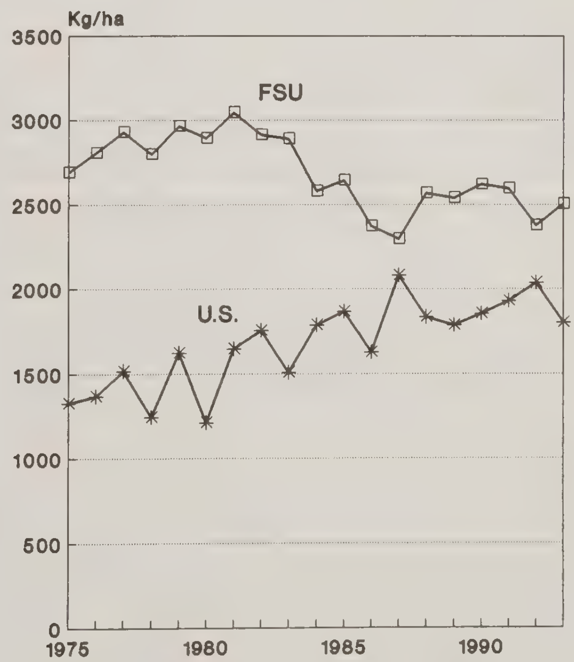
Source: FAO Agrostat.

Figure 4
Corn Output Per Unit of Fertilizer, U.S., FSU, and Russia



Source: FAO Agrostat.

Figure 5
Cotton Yield, U.S. and FSU



Source: FAO Agrostat.

product was less than half that amount (7 kilograms) (figure 6).

Fertilizer Use and Soil Fertility

A major concern among some **Russians** is that the precipitous decline in fertilizer use may deplete soil fertility. There is some concern that the true yield effects from reduced fertilizer use are being masked by the stock of soil fertility that was built up from past fertilizer use. According to this line of reasoning, recent yield developments are not sustainable given the current trend in fertilizer use. Agricultural production in **Russia** will tumble as the "mining" of the soil continues as fertilizer use continues to fall. Of course, this line of reasoning is very different from recent arguments in the West that are more concerned with excessive fertilizer use and its associated leaching and runoff pollution.

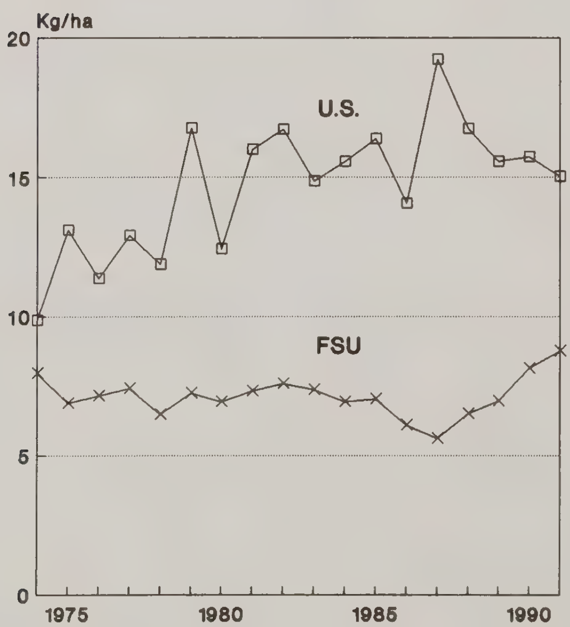
In order to obtain some indication of the extent that current production is "mining" **Russian** soil, depleting it of nutrients and fertility, parameters for the United States and the EU were utilized (because similar data for **Russia** were not available). These parameters indicate how much nitrogen, phosphorus, and potassium is extracted from the soil by production of various crops. Coupled with information on fertilizer use on various crops, this gives a rough indication of the extent of changes in soil fertility (table 13).

The data should be interpreted carefully because the parameters are for different countries, various growing conditions, soil types, and so forth, and they are for only 1 year. Furthermore, this methodology is mute regarding the stock of soil fertility and the possibility that crop-rotation practices, along with use of organic fertilizers, might replenish the soil. However, the data provide a rough estimation of the nutrient flows for 1 year.

The top part of table 13 shows fertilizer use for three crops (wheat, corn, and sugarbeets) based on data from the Food and Agriculture Organization (FAO) of the United Nations. The next two components of the table show nutrient extraction based on U.S. and EU parameters (which are not shown). The difference between the extraction rate and the nutrient-delivery rate indicates whether nutrients are building up or are being depleted. If the difference is negative, nutrients are being extracted from the soil, possibly suggesting that fertility is declining. From an environmental perspective, this is an indication that water quality may be improving, since less nutrients in the soil suggest less runoff and leaching into waterways.

The reader will note that it makes a difference which parameters are used to indicate crop uptake of the various nutrients. The data suggest that if EU parameters on nutrient uptake are applicable to **Russia**, the "mining" of soil may be delayed. However, if the U.S. parameters are applicable, soil depletion on some cropland may be underway. At least for 1990, the U.S. parameters indicate that the production of wheat and corn extracted more nitrogen and potassium from the soil than was replenished by fertilizer applications in that year. Given the fact that application rates have continued to decline since 1990, while yields have remained relatively stable, one would suspect that wheat and corn production is "mining" the soil in the sense that crop production is removing nutrients faster than current chemical sources are replenishing them. If growers do not take steps to replenish soil nutrients through use

Figure 6
Cotton Output Per Unit of Fertilizer, U.S. and FSU



Source: FAO Agrostat.

Table 13—Nutrient delivery and extraction for selected commodities, Russian Federation, 1990

	Wheat	Corn	Sugarbeets
	Kilograms per hectare		
Nutrient delivery			
Nitrogen	38	58	151
Phosphate	41	71	167
Potash	16	27	142
Nutrient extraction (U.S. parameters)			
Nitrogen	54.7	73.3	39.4
Phosphate	24.4	28.1	13.1
Potash	34.1	54.0	32.9
Nutrient extraction (EU parameters)			
Nitrogen	38.9	42.3	44.2
Phosphate	10.2	14.1	15.5
Potash	14.3	14.1	44.2

Source: ERS.

of organic fertilizers or crop rotation, the data suggest that eventually yields will decline. The rate and degree of yield declines depend on the stock of soil fertility that is being depleted, the weather, and on cultivation practices.

Farm Machinery Production and Deliveries Also Falling

Developments in the farm-machinery-production sector were very similar to those of the fertilizer production sector, namely, precipitous declines in output. One-third of **Russia's** agricultural machinery-building capacity has come to a halt. During 1993, tractor production was only 75 percent of 1992 levels, production of grain combines was only 89 percent of 1992 levels, and overall output of machinery and equipment for the farm sector fell 35 percent. Production declines seem to have accelerated during the later part of 1993. During the first half of 1993, tractor production declined only 12 percent, while production of grain combines declined 8 percent. By the end of 1993, more than one-half of farm-machinery building capacity in **Russia** was idled. This downward trend seems to have accelerated during the first quarter of 1994. Preliminary indications are that Russia's farm-machinery enterprises are operating at only 17 percent of the levels set during the same period in 1993. The most optimistic forecasts for 1994 call for agricultural machinery production to decline an additional 20-25 percent.

In an effort to increase demand for agricultural machinery, the **Russian** Government has provided subsidies to help farmers purchase machinery. In 1993, the government allocated 80 billion rubles ($85.6 million), but only 29 percent of the allocation, 23 billion rubles ($24.6 million), was actually awarded to farms. The plan for 1994 calls for machinery subsidies worth 418 billion rubles ($447.6 million).

Among the factors that affect demand for capital goods, such as farm machinery, are price (inputs and outputs), farm income, debt (an indication of farmer's ability to invest), interest rates, farm size, and age of machinery stock. All of these factors contribute to reduced demand for farm machinery. An additional factor contributing to the drop in machinery production is the breakdown of the ties with suppliers from other FSU countries. For example, most of the tractors in the FSU were produced in **Russia, Ukraine**, and **Belarus**, with these three countries supplying the rest of the FSU countries. Between 1990 and 1992 tractor exports from **Ukraine** to other FSU countries fell over 50 percent, while those from **Belarus** fell more than 10 percent. Because of falling production and higher prices in other FSU States, **Kazakhstan** is planning to use German loans to build a grain combine factory to meet its needs.

Like fertilizer prices, farm machinery prices have increased rapidly. The price index for tractors in 1993 was 46,500 (1986 = 100) 23 times the 1992 level. Similarly, the price index for trucks stood at 46,010, and the index for spare parts was 22,970. Consequently, deliveries to the farm sector continued to decline during 1993. In **Russia**, 1993 tractor deliveries are estimated to have dropped 61 percent, deliveries of grain combines fell 57 percent, and truck deliveries declined 49 percent (table 14).

The trend toward less farm machinery in **Russian** agriculture may not necessarily be bad. It may signify greater productivity per machine. But, the degree and pace of decline is probably not optimum. The number of farm tractors and harvesters and threshers (H-T) has been declining in many Western countries for a variety of reasons, including fewer farms and larger farm size. For example in the United States, there were 5.4 million tractors and 870,000 H-T in 1967, but in 1990 there were 4.7 million tractors and 664,000 H-T. Similar trends are exhibited by other market economies. As machines became more powerful, fewer of them are needed, and as they become more reliable, they can cover more area.

In addition to the drop in machinery deliveries to the agricultural sector, the machinery remaining on farms is becoming older, and shortages of spare parts are making fewer of them operable. In **Russia**, 18 percent of grain combines were inoperable in 1990, 26 percent were inoperable in 1992, and 32 percent in 1993. The problems continue for the 1994 spring planting season. Relative to 1993, reports suggest that only 75 percent of farm tractors and trucks were operational, 70 percent of plows, 66 percent of sowers, and 69 percent of cultivators. The situation in **Ukraine** is reportedly better. Farm machinery was at its usual level of readiness for the 1994 spring sowing season, with 80 percent of the tractors and 82-86 percent of the sowers in working order.

Machine breakdowns and lack of parts have always been a problem in Soviet agriculture. However, in the past, farms could overcome some of the problems by ordering more machines then needed, using some as reservoirs for spare parts. In the current climate this is not feasible. However, **Russian** agriculture was relatively less capital intensive compared to agriculture of land-abundant countries such as the United States and Canada. For example, in 1990 (latest data available), U.S. farmers employed one tractor per 40 hectares and one H-T for each 283 hectares. For Canada, the numbers were 59 and 295 hectares, respectively, while in **Russia** the numbers were 97 and 323 hectares.

However, it is difficult to say what the optimal machinery stock is. In countries where the supply of agricultural land is considered constrained and farm sizes are small, such as France or Germany, the machinery-to-area ratio is much smaller. For example, in France a tractor has to cover 13 hectares, while in Germany there is one tractor for every 5 hectares of arable land. The number of machines alone, without information on horsepower, farm size, or number of farms, does not provide very useful information. Most important is how reliable the machines are (in terms of operation time without repairs) and how efficiently they perform their function (in terms of time required to accomplish a task and, for harvesters, how much of a crop is actually harvested).

The **Russian** Government in June 1993 approved a federal development program for the agricultural machine-building industry. Government representatives state that the industry has not advanced much since the 1960's and is a technological laggard. Consequently, the farm sector is as badly equipped now as it was in the 1960's, and it is estimated that about one-half of **Russia's** farm machinery is out-of-date. The program sets out priorities of farm needs and specifies the

Table 14--Inventories, deliveries, and scrapping rates for farm machinery, selected FSU countries [1]

Year	Tractors			Grain combines			Trucks [2]		
	Inventories	Deliveries	Scrapping rate	Inventories	Deliveries	Scrapping rate	Inventories	Deliveries	Scrapping rate
	----1,000---		*Percent*	----1,000---		*Percent*	----1,000---		*Percent*
FSU									
1971-75 avg.	2,189	333	12.4	661	90	12.1	1,282	220	13.6
1975-80 avg.	2,495	361	12.9	701	108	14.3	1,527	268	15.4
1981-85 avg.	2,695	370	12.3	791	112	11.7	1,650	285	18.7
1986-90 avg.	2,716	339	13.2	745	80	14.0	1,378	333	24.4
1990	2,666	308	12.3	683	66	10.4	1,392	334	21.6
1991 [3]	2,532	277	15.4	650	63	14.0	1.364 [2]	300	23.5
1992 [3]	2,350	200	15.1	na	na	na	na	na	na
1993	na	na	na	na	na	na	na	na	na
Russian Federation									
1981-85 avg.	1,390	179	11.6	490	68	11.6	696	285	na
1986-90 avg.	1,392	182	14.2	461	47	14.3	681	145	14.1
1990	1,366	144	12.4	408	38	22.3	705	98	17.3
1991	1,344	132	11.5	394	32	11.7	698 [2]	84	13.0
1992	1,291	83	10.5	371	21	11.9	690	59	9.7
1993	1,239	32 [3]	6.8 [3]	349	9 [3]	9.0 [3]	682 [3]	30 [3]	5.6 [3]
Ukraine									
1981-85 avg.	427	51.3	10.9	102	13.5	9.7	266	na	na
1986-90 avg.	452	52.3	9.6	110	12.4	11.6	278	na	na
1990	453	na	na	106	9.0	12.3	296	na	na
1991	455	na	na	103	6.1	8.8	307	na	na
1992	465	na	na	101	4.3	6.2	309	na	na
1993 [3]	468	na	na	99	na	na	310	na	na
Kazakhstan									
1981-85 avg.	243.2	26.8	10.2	115	14.8	12	146	21	13.3
1986-90 avg.	229.3	14.3	9.7	102	11.5	17	141	12	13.6
1990	220	na	na	89	6.9	12.3	135	na	na
1991	219	na	na	87	6.0	7.2	133	na	na
1992	217	na	na	84	3.0	6.8	136	na	na
1993 [3]	190	na	na	78	1.8	7.4	117	na	na

na = Not available.
[1] Inventories are for the end of the year, and scrapping rates are equal to deliveries minus the change in inventories, divided by inventories at the end of the preceding year.
[2] Total number of trucks in the FSU is not representative of countries' data because different calcuation approaches were used in each country.
[3] Estimates.
Sources: Goskomstat SSSR; Goskomstat Rossii; Minstat Ukrainy; Goskomstat Kazakhstana.

equipment that is needed by 1998. The program is budgeted at about 9 trillion rubles ($9.6 billion at 1993 exchange rates) over the next 7 years. The government's share will be about 960 billion rubles ($1 billion) for research and design work.

In addition to the financial woes facing the farm sector, which is dampening demand, the farm-machinery-production sector may not be producing the type of machines demanded. The present factories used to build farm machinery were designed to supply State farms and collectives with an average size of over 5,000 hectares. Reforms have generated a new class of private farmers. Since land reforms began, approximately 270,000 farms have been established in **Russia,** with an average farm size of 42 hectares. Meeting the machinery demands for these farms will require development of smaller machines.

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Trade Decline Continues as FSU Struggles With Economic Reform

The economic and political restructuring in the FSU has discernably affected the level and direction of its trade. This trend is expected to continue as the FSU countries make the transition to a market-based economy. Decreased real income, severe currency devaluation, and substantial external debt were the primary factors in the 55-percent drop in extra-FSU trade during 1990-92. Despite increases in 1993 Russian real income and an appreciation of the real ruble-dollar-exchange rate, Russian imports fell 20 percent while exports increased, allowing Russia to run a substantial trade surplus. However, it is likely that very little of this amount can be used by the government to service Russia's significant external debt. [Sharon S. Sheffield]

Since their independence, the FSU countries have for the most part continued many of the trade policies of the Soviet period, such as export quotas and licensing, limited availability of foreign exchange, and the monopoly position of former State foreign trade organizations. This is largely due to FSU internal prices that have remained lower relative to world prices, and to the State's need to maintain hard currency earnings from exports to service its external debt. Yet, the FSU's reform efforts in other areas of the economy have, and will continue to have, a significant effect on trade outside and within its borders. The volume of total trade, both extra- and intra-FSU, has fallen over the last 2-3 years, and changes in the structure, composition, and direction of FSU trade have been significant. The short-to-medium-term outlook for FSU trade, both extra- and intra-FSU, is one of continued adjustment as the FSU economies restructure. In addition, FSU trade will not likely return to the high levels of interrepublic trade that characterized the Soviet economy. Financial constraints and **Russia's** significant debt obligation will likely continue to dampen FSU import demand during the next 3-4 years.

Large FSU Trade Surplus To Reduce Debt?

According to aggregate data on extra-FSU trade, the FSU ran a substantial trade surplus of $15.8 billion in 1993, up nearly $6 billion from $9.9 billion in 1992 (table 15). **Russia's** $13.8 billion surplus accounts for nearly 90 percent of the total. Given this substantial surplus, it might be expected that **Russia**, which holds most of the FSU's estimated $80-$90 billion external debt, would not require further debt service assistance or possibly use the surplus to finance 1994 imports with cash, not credit. However, analysis of Russia's 1992 trade balance indicates that the 1993 trade surplus may not be as large as it appears, and that the Russian Government may have less control over export earnings to use for debt servicing than previously assumed.

Based on data from Statkom SNG, Goskomstat Rossii, and PlanEcon, about 60 percent of total **Russian** exports were sold for hard currency in 1992, the rest were on a barter or clearing basis. In 1993, hard currency exports accounted for 72 percent of the total. The analogous shares for Russian imports in 1992 and 1993 are 70 percent and 73 percent, respectively (table 16). The trade balance of barter and clearing transactions should be zero, but in 1992 and 1993 Russia ran a trade surplus, likely due to price distortions and capital flight. Based on this information, it appears that in 1992 Russia actually ran a hard currency trade deficit of $600 million, instead of the $5.4-billion surplus reported by Goskomstat Rossii. Similarly, in 1993, Russia's 1993 trade surplus is reduced from nearly $14 billion to around $9-$10 billion, in actual hard currency receipts.

Furthermore, based on 10-month data for 1993 receipts of the Russian Hard Currency Fund, it is likely that less than 50 percent of the 1993 hard currency export earnings of $31 billion was surrendered to the **Russian** Government. Almost all of the estimated $14-$16 billion in 1993 Government hard currency receipts were used for centralized imports, debt servicing, and to support the ruble exchange rate in internal markets. Thus very little of 1993 hard currency export earnings was available for use in 1994. While evasion of high taxes and surrender rates contribute to lower hard currency receipts by the Russian Government, it should be noted that in 1993 oil and gas exporters were exempted from the surrender requirement to compensate for lower prices received from mandatory centralized exports. Also, beginning in July 1993, hard currency receipts were required to be sold on the market, rather than directly to the Central Bank. In addition, a significant amount of hard currency earnings held by non-State sources were either deposited, legally or illegally, in Western banks outside of Russia, or used for overseas investment. Moreover, it is likely that Russian statistics do not fully capture the magnitude of capital flight, which has been estimated as high as $10 billion for 1993. Therefore, even if the Russian Government wanted to purchase additional hard currency earnings from exporters to use in 1994, it appears that much of this convertible currency is located outside of Russia.

Russia's 1994 external debt-service obligation (principal and interest) is around $28 billion. In February 1994, the Russian Government reportedly allocated $6.4 billion to cover this obligation, presumably under the assumption that rescheduling would continue. However, the outlook for substantial 1994 debt relief is far from certain. A debt-rescheduling agreement with the London Club of commercial creditors has yet to be reached, largely due to Russia's refusal to revoke its sovereign immunity and the London Club's request that

all of Russia's assets serve as a guarantee of repayment. The Paris Club, which represents Russia's government creditors, extended its April 1993 debt-rescheduling agreement through the first 4 months of 1994, but further arrangements were held up by negotiations between Russia and the International Monetary Fund (IMF) over additional funding. As of mid-May 1993, no progress had been made in rescheduling Russia's 1994 debt obligations.

Decreased Purchasing Power Lowers Extra-FSU Trade

Extra-FSU trade is expected to remain at reduced levels, with imports generally lower than exports, until some degree of economic recovery takes place in the region. Since the breakup of the Soviet Union at the end of 1991, extra-FSU trade has been characterized by sharp decreases in imports, and stable or even increased exports, leading to trade surpluses for some countries. The primary causes of these trends are: decreased real income, currency depreciation, hard currency constraints, and substantial external debt. However, in **Russia**, real income in 1993 increased, while the real ruble-dollar-exchange rate appreciated from 1992. Despite these trends, total Russian imports in 1993 continued to fall, while exports increased, the opposite of what would have been expected. To a large extent, this phenomena was due to the decision by exporters to use hard currency revenues from exports, not to import goods, but to build up external reserves. In addition, it is likely that these trade statistics understate the actual volume of imports and exports, due to underdeveloped customs reporting, and underreporting by traders to avoid licensing and taxes.

Perhaps the most significant effect of FSU economic restructuring has been the reduction in real incomes that followed the 1992 price liberalization. For example, in most of the FSU countries, lower government consumer subsidies increased relative prices for particular food items, which dampened import demand. The most dramatic example of this is the sharp reduction in grain imports that has resulted from lower consumer demand for livestock products, one of the primary determinants of FSU grain-import demand. FSU grain imports fell 40 percent over the period 1991/92-1993/94. While other factors, such as stable production and procurement in 1992 and 1993, as well as relatively more efficient use, contributed to lowering imports, the decrease in consumer purchasing power caused by price liberalization was probably the chief factor leading to lower FSU grain import demand.

The sharp depreciation of the ruble and the subsequent introduction of new FSU currencies also affected extra-FSU trade

Table 15--Extra-FSU trade balances [1]

	1990	1991			1992			1993 [2]		
	Balance	Exports	Imports	Balance	Exports	Imports	Balance	Exports	Imports	Balance
					$ billion					
Russian Federation	9.6	50.9	44.5	6.4	42.4	37.0	5.4	43.0	29.2	13.8
Ukraine	−3.1	4.8	6.6	−1.8	3.8	2.2	1.6	3.0	2.2	0.8
Belarus	−1.3	1.7	2.0	−0.3	1.1	0.8	0.3	0.7	0.7	−0.0
Moldova	−1.5	0.1	0.6	−0.5	0.4	0.2	0.2	0.1	0.1	−0.0
Kazakhstan	−2.3	0.8	1.6	−0.8	1.5	0.5	1.0	1.3	0.4	0.9
Uzbekistan	−2.0	0.6	1.3	−0.7	0.9	0.9	−0.0	0.6	0.9	−0.3
Kyrgyzstan	−1.4	0.1	0.6	−0.5	0.1	0.1	0.0	0.1	0.1	0.0
Tajikistan	−0.6	0.3	0.5	−0.2	0.1	0.1	0.0	0.3	0.4	−0.1
Turkmenistan	−0.8	0.1	0.4	−0.3	0.9	0.0	0.9	1.0	0.4	0.6
Armenia	−1.3	0.1	0.8	−0.7	0.0	0.3	−0.3	0.0	0.1	−0.1
Azerbaijan	−1.4	0.3	0.8	−0.5	0.8	0.3	0.5	0.4	0.2	0.2
Georgia	−2.5	0.2	1.5	−1.3	na	na	na	na	na	na
Lithuania	−1.0	0.3	0.8	−0.5	0.7	0.4	0.3	0.9	0.8	0.1
Latvia	−1.4	0.1	0.9	−0.8	0.5	0.5	0.0	0.3	0.3	0.0
Estonia	−0.7	0.1	0.4	−0.3	0.5	0.5	0.0	0.8	0.9	−0.1
Total	−11.7	60.4	63.3	−2.9	53.7	43.8	9.9	52.5	36.7	15.8

na = Not available.
[1] Converted to dollars from valuta rubles in 1990 at the official rate, in 1991 at the commercial rate.
[2] Preliminary, Russian imports include $2.2 billion in humanitarian assistance.
Sources: Statkom SNG; PlanEcon; ERS estimates.

Table 16--Extra-FSU trade balances, Russia [1]

	1992		1993	
	Exports	Imports	Exports	Imports
	$ billion			
Total goods	42.4	37.0	43.0	29.2
Barter and clearing accts	17.0	11.0	12.0	7.9
Foreign exchange trade	25.4	26.0	31.0	21.3

[1] Data for 1993 trade from Goskomstat Rossii end-year report, except for imports, which were increased to include aid. Breakout of trade is estimated, based on Goskomstat Rossii and PlanEcon data.
Sources: PlanEcon; Goskomstat Rossii.

flows. The drop in FSU imports was a logical result of the depreciation of both the real and nominal ruble-exchange rates in the 1991-92 period. In 1993, several FSU countries introduced their own currencies, which contributed to the continued decline in FSU trade as these currencies were established. However, in Russia, real incomes rose and the real exchange rate appreciated against the dollar, trends that should have led to increased imports, but according to official statistics, didn't. The most likely explanation for Russia's 1993 trade results (slightly higher exports, continued drop in imports) is the decision made by traders to build hard currency reserves. Lower government imports are also linked to decreased levels of foreign credits available in 1993.

New Directions for FSU Intra-Trade?

Intra-FSU trade is not expected to return to the high levels of the Soviet period, and resumption of this trade in the short-to-medium term will be hindered by political disputes, lack of an effective payments mechanism, diversion of trade to non-FSU markets, and the erection of trade barriers. Interrepublic trade during the Soviet period was highly concentrated, accounting for as much as 90 percent of total trade for some of the republics (table 17). This level of integration is much higher than for other regional trade, such as that of the EU, which in 1990 averaged around 60 percent of total trade.

Trade relations developed during the Soviet period were not based on economic concepts such as comparative advantage. Maintaining economically inefficient trade would inhibit genuine economic restructuring, continue inefficient production of unwanted goods, and prevent resources from moving to more productive users.

Intra-FSU trade began to decline even before the breakup of the Union in December 1991. The level of 1991 intra-trade fell 30 percent compared to 1990, and since 1989, intra-FSU trade has fallen by 60-70 percent. To a large extent, the instability that characterized the Soviet political situation in 1991 contributed to the fall in intra-trade, as well as the process of the breakup itself.

Table 17--Total and intraregional trade as share of GDP, FSU and EU

Region	Total trade as a percent of GDP [1]	Share of intraregional in total trade [2]
	Percent	
Soviet Union (1988)		
Armenia	54.9	89.1
Azerbaijan	42.0	85.6
Belarus	51.4	85.8
Estonia	63.9	85.1
Georgia	44.3	86.5
Kazakhstan	33.9	86.3
Kyrgyzstan	45.2	86.9
Latvia	54.6	86.7
Lithuania	54.9	86.8
Moldova	53.1	87.8
Russian Federation	22.3	57.8
Tajikistan	41.6	86.3
Turkmenistan	39.3	89.1
Ukraine	34.1	79.0
Uzbekistan	39.5	85.8
Average for USSR	29.4	71.8
EU (1990)		
Belgium/Luxembourg	57.6	74.3
Denmark	25.3	51.9
France	19.0	59.9
Germany	25.4	52.6
Greece	21.1	64.3
Ireland	52.3	71.2
Italy	16.2	58.0
Netherlands	46.1	70.4
Portugal	34.8	70.7
Spain	14.5	63.7
UK	20.8	52.9
Average for EU	23.1	59.2

[1] Trade is measured by the average of exports and imports as a percent of GDP and includes both intra- and extra-trade.
[2] Intraregional trade refers to trade within the FSU or EU.
Source: IMF.

While the FSU countries attempted to maintain to some degree the Soviet system of centralized deliveries, fulfillment of government-to-government agreements decreased substantially during the period 1990-93. The breakup of the USSR led the republics to exert their newly gained political and economic independence, by increased emphasis on self-sufficiency or developing links with non-FSU countries. Since these countries had a highly integrated, regional economic system, the breakdown in intra-FSU trade exacerbated the production declines in all of the countries that occurred as a

FSU Countries Look Toward the GATT

Several FSU countries have expressed interest in obtaining full membership in the General Agreement on Tariffs and Trade (GATT). Currently, 10 of the FSU countries have observer status in the GATT, which is the first step towards full membership. The FSU countries see GATT membership as a way to stimulate extra-FSU trade and encourage foreign investment. While it is likely that several of the FSU countries that are moving more quickly to market economic systems will receive full membership in the next 2-3 years, it is possible that the **Baltic** nations could become full members within a year.

The GATT was developed in the post-War period to provide a mechanism for countries to move toward freer trade. The main principle of the GATT system is unconditional "Most-Favored Nation" (MFN) treatment, meaning that the same trade advantages and restrictions are extended to all trading partners. An important qualification to this concept allows governments to create a single market for all products (such as a free trade area or customs union) that would presumably give member States certain trading advantages.

GATT articles prohibit nontariff trade restrictions, and subsequent negotiation rounds have lowered the levels of accepted tariffs. For example, GATT negotiations have lowered the average tariff from 40 percent in 1947 to under 5 percent in 1979. However, until the recent Uruguay Round Agreement, little progress had been made in reducing agricultural trade barriers.

Before its breakup, the Soviet Union had observer status in the GATT, and was moving to apply for full membership. Since 1992, **Armenia, Belarus, Kazakhstan, Moldova, Turkmenistan, Ukraine,** and **Russia**, along with the three **Baltic** countries, have received observer status. By the end of 1993, Russia, Armenia, Moldova, Ukraine, and the three Baltic countries began the application process to become full members of the GATT.

Applying to the GATT is a complicated process, as a detailed account of the country's foreign trade regime and extensive trade data must be presented to the GATT Commission for consideration. The short period of independence since the break-up of the Soviet Union and the on-going transition from centrally planned to market economies make this a difficult task for the FSU countries. However, assistance has been provided by several GATT members and international organizations to facilitate the process. For example, the United States has provided **Russia** with assistance in preparing its application, while the World Bank has supported the efforts of the **Baltics** in preparing to join the GATT. [Sharon S. Sheffield]

result of economic reform. The drop in production further reduced intra-FSU trade, making the FSU's ability to stabilize production more difficult.

A primary reason for the collapse in interregional trade after the breakup of the USSR is the gradual disintegration of the ruble payments mechanism and more importantly, the absence of an effective clearing mechanism. By the end of 1993, the so-called "ruble zone" (where the Russian ruble was the sole legal tender) had been disbanded, as Russia's currency reform in July rendered pre-1993 rubles used in other FSU countries invalid, and only **Tajikistan** had signed an agreement to continue to use the Russian ruble as legal tender. In 1994, **Belarus**, which was expected to introduce its own currency, moved closer to making the Russian ruble its sole legal tender. While the introduction of new currencies complicated the FSU payments system, the primary intra-FSU trade problem is the inability of trading partners to make timely payments that are not eroded by high levels of inflation, which results in a substantial disincentive to intra-FSU trade.

Another reason for lower levels of interrepublic trade is the diversion of certain commodities, such as raw materials, for export on the world market, where prices are higher and are payable in hard currency. For example, 1993 **Russian** energy exports to the FSU countries fell 25-40 percent, while exports to non-FSU partners increased by as much as 40 percent. Cotton from **Central Asia**, particularly **Uzbekistan**, has also been sold on the world market instead of to the FSU countries. However, the prices these countries receive for their output is often lower than world market prices due to lower quality and the use of these commodities in barter transactions, which often distorts the prices of the traded goods. Nevertheless, the share of extra-FSU trade with the developed countries (mostly Europe) continues to grow, further displacing historical trade ties between the FSU and the former socialist bloc.

Lastly, reported volumes of intra-FSU trade may have declined due to underreporting and increasing non-State trade, particularly enterprise-to-enterprise trade. While it is difficult to estimate the amount of trade flowing through non-State channels, it is likely that non-State trade is making up some of the difference. An example of this shift is the rise in enterprise-to-enterprise trade, usually on a barter basis, which has developed as firms attempt to mitigate input shortages that resulted from the breakdown of State trade.

Despite efforts to maintain political and economic cooperation through the Commonwealth of Independent States (CIS), the successor organization of the Soviet Union, little success to date has been achieved in terms of greater regional coordination. Proposals to create a system of common CIS trade policies and a CIS interstate bank to facilitate trade payments have not yet been implemented. While all 12 of the successor States to the USSR have joined the CIS, Ukraine and Turkmenistan have accepted associate membership, while Azerbaijan, Moldova, and Georgia were to some extent pressured by Russia to join. While the viability of the CIS could increase over the longer term, it is expected that for next 2-3 years the FSU countries will likely continue to emphasize their economic and political independence at the cost of increased cooperation.

The Year of the Litas, Lats, Som, Tenge, Dram, Manat, and Leu: 1993

The breakdown of the ruble zone accelerated in 1993 as nearly all of the FSU countries introduced new currencies, either permanent or temporary (table 18). Even **Russia**, the primary member of the ruble zone, implemented a currency reform in 1993 that led to the withdrawal of banknotes printed prior to 1993. Macroeconomic instability and liquidity difficulties led the countries to introduce new currencies. By introducing their own currencies, some of the FSU countries hoped in some cases to establish greater economic and financial independence from Russia, along with increased control of fiscal and monetary policy in order to stabilize their macroeconomies, and to use this stability to expedite economic recovery and growth. Others, however, established parallel currencies to achieve the opposite goal--issuing new currencies to cover budget deficits. While the disintegration of the ruble zone will further complicate interregional trade transactions in the short run, it is expected that the creation of separate currencies, given the implementation of appropriate fiscal and monetary policies, will in the medium-to-long run have positive results.

The **Baltic** nations, along with **Kyrgyzstan**, were the first to introduce their own currencies, which are either fully or current-account convertible based on a floating-rate regime, or in the case of the **Estonian** kroon, pegged to the German deutsche mark with current account convertibility. Later, inMarch 1994, **Lithuania** pegged its currency, the litas, to the U.S. dollar. By pursuing relatively tight monetary policy, the **Baltic** countries have experienced lower inflation rates, while their currencies have remained stable or even appreciated against the U.S. dollar. On the other hand, despite initial success in reducing its fiscal deficit, liberalizing prices, and tightening monetary policy, by the third quarter of 1993, **Kyrgyzstan** had reimposed some price controls and relaxed its fiscal policy, leading to significant inflation (15-30 percent a month) and a depreciation of the som against the U.S. dollar.

Ukraine introduced its own currency, the karbovanets, as temporary legal tender until the introduction of the hryvnya, its intended permanent currency. However, the karbovanets was not introduced with the required fiscal and monetary policies. Instead, the new currency was used to circumvent the limited constraints on credit expansion existing in the ruble zone. In addition to this, the Ukrainian Government chose to continue its policy of price control, wage indexation, and soft budgetary controls, resulting in hyperinflation in 1993 and the sharp depreciation of the karbovanets against both the dollar and the Russian ruble.

By the end of September 1993, six countries (**Russia, Armenia, Belarus, Uzbekistan, Kazakhstan, and Tajikistan**) had signed ruble zone agreements, which stipulated the use of the Russian ruble as the sole legal tender and the Central Bank of Russia as the sole source of credit and cash emission. However, by November, **Kazakhstan, Uzbekistan,** and **Armenia** had introduced their own currencies, largely in response to Russia's conditions for remaining in the ruble zone. On the other hand, **Tajikistan**, which has few financial alternatives, is expected to stay with the Russian ruble. **Belarus** was expected to introduce its own currency, but in early 1994 moved closer to monetary unification with Russia in order to maintain some level of Russian credits and subsidies. **Georgia**, which was not an original member of the CIS, has in recent months moved back into the CIS framework and could possibly return to the ruble zone. [Sharon S. Sheffield]

Table 18--New FSU currencies

Country	Currency	Date of monetary reform	Exchange rate[4]	Comments
Permanent legal tender				
Estonia	Kroon	June 1992	DM1=8 kroons $1=13.7 kroons	Currency board, with peg to DM; current account convertibility.
Latvia	Lats	March 1993	$1=0.59 lats	Floating-rate regime. Full convertability.
Kyrgyzstan	Som	May 1993	$1=7.93 som	Floating-rate regime. Full convertability.
Lithuania	Litas	June 1993	$1=3.81 litas	Originally used floating-rate regime. Litas pegged to U.S. dollar in March 1994. Current account convertability.
Azerbaijan	Manat	June 1993	na	Large supply of pre-1993 rubles remain in bank accounts.
Russia	Ruble[1]	August 1993	$1=1,398 rubles	Pre-1993 banknotes were withdrawn from circulation.
Turkmenistan	Manat	November 1993	na	Exchange rate determined by weekly auction.
Kazakhstan	Tenge	November 1993	$1=9.37 tenge	
Armenia	Dram	November 1993	$1=75 dram	Introduced at exchange rate of 200 pre-1993 rubles per dram.
Moldova	Leu	November 1993	$1=3.59 leu	Trans-Dniester region continues to use Russian rubles.
Temporary legal tender				
Ukraine	Karbovanets	November 1992	$1=30,243 kar.	Permanent tender, the hryvnya, when economy stabilizes; foreign exchange auctions suspended in November 1993.
Belarus	Rubel[2]	May 1993	$1=7,847 rubel	Signed monetary union agreement with Russia in March 1994.
Georgia	Coupon	August 1993	na	Introduction of permanent tender, the lari, is under discussion.
Uzbekistan	Sum-coupon	November 1993	$1=1,150 sum	Permanent tender, the som, expected in 1994.
Tajikistan	Ruble[3]	--	na	Signed bilateral agreement with Russia, will use Russian ruble as sole legal tender.

-- = Not applicable.
na = Not available.
[1] Rubles issued after 1992.
[2] Belarus also uses pre-1993 Russian rubles.
[3] Pre-1993 ruble.
[4] January 1994, except for the dram and the sum-coupon, which are December 1993.
Sources: World Bank; IMF; Statkom SNG; ERS.

Will Russia Join the European Union?

The prospects for **Russian** accession to the EU, and Russian farmers enjoying the high support of the Common Agricultural Policy (CAP), seem very far off at the moment. Despite a new treaty with the EU, Russia must wait behind at least 10 other aspirant countries. Continuing the economic reform process is essential if Russia is to stay on the road toward EU membership.

After decades of leading its own economic bloc, **Russia** actually is behind most of its former partners in the Council of Mutual Economic Assistance (CMEA) in terms of adapting its economy to the Western model. The Czech and Slovak Republics, Hungary, and Poland became associate EU members by signing Association Agreements with the EU in 1991, and Bulgaria and Romania followed suit in early 1993. Under the agreements, 85 percent of Central and Eastern European (CEE) exports (mostly clothing, iron, and steel) to the EU will be free of duty and quantitative restrictions by 1998. But trade in agricultural products, about 10 percent of CEE exports to the EU, will still be governed by quotas and subject to tariffs and minimum import prices. The most advanced of the CEE countries, such as Poland and Hungary, may soon be admitted to the Organization for Economic Cooperation and Development (which includes the G-24).

In June 1993, the EU agreed to eventual membership for the six CEE countries. No timetable was set, however, and EU membership for the CEE's may still be a decade away. First, the EU plans to admit some of the wealthy countries of the European Free Trade Association and perhaps adopt a common currency as part of its goal of economic and monetary union. The more the EU deepens its integration, the harder it will be for new countries to join. In order to meet the EU where it hopes to go, the CEE economies would need to achieve a higher level of development, with less dependence on the State sector, greater transparency and consistency in policymaking, higher environmental standards, and freedom of movement of goods, services, capital, and labor.

Russia and the EU are completing a Partnership and Cooperation Agreement to replace the 1989 treaty that granted the former Soviet Union MFN status. One of the main benefits is that Russia will now be considered an "economy in transition," and entitled to consultation in antidumping cases. In early 1994, the EU had seven antidumping measures in force against Russian goods (including fertilizer), with eight more cases pending. Under an "evolutionary clause" in the treaty, Russia and the EU will decide by 1998 whether to set up a free-trade zone stretching "from Valencia to Vladivostok." However, the EU insists that liberalization depends on Russia creating a market economy, adopting GATT rules (such as national treatment), and respecting human rights. The EU is also negotiating similar accords with **Belarus, Kazakhstan,** and **Ukraine**. The accords with the FSU countries will not confer associate member status, let alone assure eventual accession to the EU.

Russia lags behind its CEE neighbors in building a market-oriented agricultural sector with efficient production and distribution systems. Many of the CEE's are already adjusting agricultural support policies with an eye on the EU's CAP. As is the case with the CEE's, Russia's agriculture and food products are often of much lower quality than those the EU produces. In order to orient its agriculture towards Western Europe, Russia must tame inflation, develop a convertible currency, and radically improve market structures such as agricultural credit, commodity exchanges, market news services, grades and standards specification, and statistical reporting. Besides these economic adjustments, Russia must also satisfy two main requirements for EU membership: that every member maintain a democratic form of government and actually be a "European State," which with Russia's turbulent politics and large Asian territory makes EU membership very complicated. [Daniel J. Plunkett]

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FSU Countries Develop New Trade Regimes

The FSU countries have begun, to varying degrees, to liberalize their economies and to develop independent trade policies. While continuation of government involvement or control of trade is expected in the short-to-medium run, State intervention in either intra- or extra-FSU trade could decline as these countries attempt to stimulate economic growth by increasing trade and to participate in international organizations such as the GATT. [Sharon S. Sheffield and Jaclyn Y. Shend]

Before the breakup of the USSR, the Soviet economy was based on centrally planned distribution and allocation of resources. Internal prices were set independently of market forces, and were isolated from world market prices. As a result, these State-set prices did not transmit relative resource scarcities and were primarily used for accounting purposes. To a large extent, the Soviet trade regime mirrored that of the overall economy: State control of exports (in terms of volume and revenue), centralized imports distributed by State organizations, and mandatory deliveries to the State.

Trade within CMEA was also based on bilateral barter-type agreements with highly distorted prices, such that the USSR subsidized most of its CMEA trading partners with cheap energy exports traded for overpriced agricultural and manufactured goods. Soviet trade outside of the CMEA system took place in order to earn hard currency, primarily through the export of energy products and raw materials. Hard currency was used to purchase commodities unavailable through socialist trade. Generally these imports were subsidized by the State to reduce the disparity between world and domestic prices.

While many aspects of the Soviet-era trade regime are still in place, such as State regulation of exports, hard currency earnings, centralized imports, and some barter transactions, there has been some movement away from the system of Soviet planning to freer trade. In terms of export policies, all of the FSU countries have maintained some level of tariffs and licensing, while none apply direct subsidies (table 19). Export quotas for so-called "strategic goods" (energy, raw materials, agricultural goods) remain in place for most countries. Generally speaking, the progress in liberalizing export policies in the FSU closely mirrors the degree to which price liberalization and monetary reform have occurred in each country. For example, those countries that have largely liberalized prices and introduced convertible currencies, such as the **Baltics**, have relatively more liberal export policies than those countries that have not instituted such reforms.

FSU import policy is generally characterized by tariffs and subsidies, but relatively few quotas. To a large extent these policies reflect the still significant role of the State in purchasing and distributing imports. Tariffs were for the most part put in place during 1992-1993 to raise revenue. However, with price liberalization in some FSU countries and increased private trade activity, there have been increasing calls for more protectionist trade measures, largely in the form of higher tariffs, to shield inefficient domestic producers who are faced with competition from lower-priced imports. Some of the most forceful calls for increased protection for domestic producers come from agricultural interests.

However, opposition to this increase has come from private traders and businesses, and in **Russia**, from several urban areas, which maintain that such a policy would result in reduced food supplies to the urban population and possibly lead to civil unrest. The Russian Ministry of Foreign Economic Relations has also opposed the new tariffs, pointing to the sharp drop in 1993 imports that was achieved without the application of high tariffs, as well as to the effect these tariffs will have on consumers, primarily in the form of higher prices and decreased variety (and in some cases, quality) of goods.

In March, the **Russian** Government announced new import tariff rates for a number of commodities, particularly agricultural products. These new tariff rates for agricultural products ranged from 1-100 percent of the value of product, while some tariffs were expressed in European Currency Units (ECU)/unit of measure. In addition, the rates vary by importer, for example, countries without MFN status face higher tariffs than those with this status. Developing countries and certain FSU countries (with bilateral free-trade agreements) are subject to lower rates or are exempt. Commodities most notably assessed with first-time or higher tariffs include sugar and confectionery products, certain livestock and dairy products, potatoes and other vegetables, alcoholic beverages, chocolate, cotton, wool, and tobacco products. Also, it appeared that grain imports, previously distributed to processors at highly subsidized prices, would be subject to a 1-percent tariff. **Ukraine** also introduced higher import taxes, ranging from 30-300 percent of the wholesale price, in order to protect its producers. Alcoholic beverages, tobacco, and sugar are some of the commodities subject to higher rates. Reportedly, imports from **Russia** and **Belarus** are exempt from the increases.

However, in April 1994, the **Russian** Government issued a new decree that postponed the introduction of increased tariff rates (including tariffs newly established by the March decree) until July 1. During this period, the tariff increases will be re-examined and the customs system will be evaluated in terms of how it can be improved. By the end of 1994, the reduction of import tariffs of 30 percent and higher is expected, particularly considering Russia's desire to join the GATT.

Table 19--Trade policies for 1993, selected FSU countries

FSU countries	Export policies			Import policies			U.S. trade agreements				
	Tariffs	Quotas	Subsidies	Tariffs	Quotas	Subsidies	GATT	MFN	GSP	OPIC	EXIM
Russian Fed.	Yes	Yes	Almost none [1]	Yes	Almost none [2]	Almost none [3]	O.S.	Yes	Yes	Yes	Yes
Lithuania	Yes [4]	Almost none	No	Yes [5] (5–15%)	Almost none [2]	Yes [6]	O.S.	Yes	Yes	Yes	na
Latvia	Almost none	No	No	Yes (7.5–20%)	Almost none [2]	No	O.S.	Yes	Yes	Yes	na
Estonia	Almost none	Yes	No	Yes [7]	Only tobacco & alcohol	No	O.S.	Yes	Yes	Yes	na
Ukraine	Yes (5–10%)	Yes	No	Yes *	Almost none [2]	Yes [8]	O.S.	Yes	Yes	Yes	No
Belarus	Yes (2–30%)	Yes [9]	No	Yes * (0–20%)	Almost none [2]	No	O.S.	Yes	No	Yes	Yes
Moldova	Yes [10]	Yes	No	Yes *	Almost none [2]	Yes	O.S.	Yes	No	Yes	No
Kazakhstan	Yes (about 18%)	Yes	No	Yes *	Almost none [2]	Yes	O.S.	Yes	No	Yes	Yes
Kyrgyzstan	Yes	Yes (licenses)	No	Yes * (0–20%)	Almost none [2]	na	No	Yes	Yes	Yes	No
Uzbekistan	Yes [11]	Yes [12]	No	No	Almost none [2]	Yes	No	Yes	No	Yes	No
Turkmenistan	Yes (10–30%) natural gas 80%	Yes [13]	No	Yes *	Yes	Yes	O.S.	Yes	No	Yes	Yes
Tajikistan	Yes	Yes	No	Yes *	Almost none [2]	Yes	No	Yes	No	Yes	No
Armenia	na	Yes	No	Yes * (0–15%)	Almost none [2]	Yes	O.S.	Yes	No	Yes	No
Azerbaijan	Yes	Yes	No	Yes *	Almost none [2]	Yes	No	No	No	No	No
Georgia	Yes *	Yes [14]	No	Yes *	Almost none [2]	Yes	No	Yes	No	Yes	No

GATT: General Agreement on Trade and Tariffs. **MFN:** Most–Favored–Nation. **OPIC** Overseas Private Investment Corporation.
GSP: Generalized System of Preferences (accords nonreciprocal tariff preferences). **EXIM:** U.S. Export–Import Bank.
O.S. = Observer status. * For non–FSU countries. na = Not available.

[1] Energy products exported to FSU countries were subsidized through low prices or favorable terms of trade within barter arrangements. [2] Few restrictions for reasons of health and national security.
[3] By the end of 1993, nearly all import subsidies were eliminated on the Federal level.
[4] Enegry products (10 percent), metals (5 to 10 percent), timber and leather hide (50 percent).
[5] Sugar, meat, eggs, tobacco, and oil (20 to 30 percent); alcohol (20 to 100 percent).
[6] Oil products sold to household; food products imported from U.S.
[7] Import tariff of 70 percent on fine wheat and rye flour, wheat and rye groats from Russia. [8] Fuel and coal for households.
[9] Quotas on mineral fertilizers, timber, basic foodstuffs; licenses for energy products, chemical fertilizers, food items, alcohol, etc.
[10] 30 percent on meat, fruits, and vegetables; 20 percent on other food products. [11] Mainly cotton exports.
[12] Mainly for goods considered to be of strategic importance such as cotton, mineral products, fertilizers, and silk cocoons.
[13] Mainly for natural gas and cotton. [14] Some agricultural products are banned from exports and others are under quota restriction.
Sources: IMF; U.S. Department of Commerce.

Another trend in the import policies of some of the FSU countries in 1993 was the reduction of import subsidies, particularly in **Russia**. Before their reduction, it is estimated that 1992 Russian import subsidies amounted to 18 percent of GDP. The removal of these subsidies has resulted in significantly lower imports, particularly of agricultural goods that were previously heavily subsidized. As with the push to increase import tariffs, much of the pressure to remove these subsidies came from conservative agrarian interests attempting to protect domestic producers.

The two primary developments in intra-FSU trade in 1992 and 1993 were the decline in State-mandated bilateral trade agreements and increased movement toward regional trading blocks, particularly with non-FSU partners. During 1992-1993, the FSU countries attempted to maintain State intra-FSU trade by negotiating intra-FSU State agreements that stipulated the volumes of materials each country would be required to export to the other partner. However, fulfillment of these State agreements remained low, as the mechanisms to ensure deliveries to the State for bilateral trade had largely been dismantled with the breakup of the Soviet Union. As a result, official intra-FSU trade fell off from historical levels, as enterprises traded directly or bartered their output for imports from non-FSU countries. This decline is expected to continue in 1994.

Movement by some of the FSU countries to develop regional trading blocks was in part a result of the decline in bilateral State trade, but, to a large extent, was due to the inability of the CIS to create a viable mechanism to facilitate multilateral trade. For example, the **Central Asian** nations and **Azerbaijan** joined the Economic Cooperation Organization (ECO) to increase trade and assistance with other Islamic countries, while **Russia, Ukraine, Moldova, Azerbaijan, Armenia,** and **Georgia** gained membership in the Black Sea Cooperation Organization, a group that fosters trade and investment among countries bordering on the Black Sea. In addition, the three Slavic countries, **Russia, Ukraine,** and Belarus, announced a regional economic union in 1993, largely in response to Central Asia's membership in the ECO. In early 1994, **Kazakhstan, Uzbekistan,** and **Kyrgyzstan** announced a regional trading block open to all CIS members. In addition, an agreement was signed by the CIS members in May to create a free-trade zone and a standing CIS institution, the Commission of Economic Union, to oversee increased economic coordination. However, it is unclear if these recent moves toward greater cooperation will be successful, given past efforts.

Outside of the CIS framework, the **Baltic** nations have perhaps gone the farthest in establishing regional free trade, and in implementing free trade agreements with its Scandinavian neighbors. A preferential trade agreement with the EU is also expected in the near future, which the Baltic States hope will lead to eventual membership in the EU.

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New Direction for World Agricultural Assistance to FSU

Total international assistance to the former Soviet Union is likely to decline in the near term as policymakers determine how best to assist the region as its political and economic transformation progresses. As a result, agricultural export credits and food aid are also expected to decrease, as the West's strategy shifts to increased technical assistance. [Sharon S. Sheffield]

Since the fall of communism and the breakup of the Soviet Union in 1991, the international community has pledged a significant level of assistance, estimated at over $80 billion, to the FSU to support the political and economic transformation taking place there. Pledged agricultural export assistance and donations make up approximately 25-30 percent of this total, or over $25 billion, of which half has likely been disbursed. The major aims of agricultural assistance and donations include the promotion of market reforms in the FSU's agricultural sector, helping to ensure stable food supplies during the reform period, and maintaining agricultural exports to one of the world's traditionally largest importers.

However, in some respects, agricultural assistance may have unintentionally impeded the reform process by increasing the FSU's external debt burden, perpetuating State control of agricultural distribution, and slowing the development of a market-based system. Recent political events in the FSU, particularly in Russia, where reformers left the government, and parties opposed to real market reforms won a majority in the new parliament, further complicate the international community's efforts to provide tangible assistance that supports and rewards FSU commitment to reform. Given this setting, the focus of agricultural assistance will likely shift to increased technical assistance and sectoral investment, and away from agricultural credits and donations, except where food supplies are severely disrupted.

What Kind of Assistance Has Been Provided?

As donor nations announce and implement numerous agricultural programs for the FSU, compiling accurate statistics has proven difficult. In some cases, announced assistance is only partially disbursed, or never released. Also, food programs are often announced as part of larger commercial, humanitarian, or technical assistance packages, which may include non-agricultural funding. Lastly, the definition of the term former Soviet Union differs among donor nations, many of which provide assistance to the Baltic nations separately from the other 12 FSU countries.

For the purposes of this article, agricultural export and food assistance to the FSU is understood to include government-backed credit, either commercial or concessional, food donations, and technical assistance pledged or distributed to any of the 15 FSU countries. However, it should be noted that the bulk of this assistance has gone to the **Russian Federation**, while the largest share of assistance (over 80 percent) has been in the form of government-backed commercial credits and credit guarantees.

Either directly disbursed by governments or through guarantees, these credits were extended to finance commercial exports of agricultural goods to the FSU, once commercial banks deemed it too large a credit risk. Governments have also extended credits or credit guarantees to support barter and triangular agricultural trade.

Given the ineligibility of some FSU nations to participate in commercial credit programs, donor nations have provided agricultural commodities through donation and concessional loan programs. These concessional programs have also been used to supplement commercial financing. Food donations are usually distributed by private voluntary organizations (PVO's) or through government-to-government agreements, and can be in the form of bulk or processed commodities. Concessional sales are arranged with credit that usually carries a grace period, longer terms of repayment, and considerably lower (that is, below-market) interest rates.

The third form of support is technical assistance. Intended to support long-term development of the FSU agricultural sector, examples of agricultural technical assistance include model farms, development of market institutions, government advisors, farmer-to-farmer exchanges, and infrastructure improvement. Compared to the first two forms of aid, technical assistance, although growing in scale, makes up a smaller amount of total agricultural assistance and is difficult to track for a large number of donor countries and organizations.

An indirect form of agricultural assistance is debt rescheduling. The **Russian Federation** assumed nearly all of the estimated $80-$90 billion Soviet external debt when the USSR was dissolved. However, debt-servicing difficulties during 1991-1992 led to Russia's suspension from credit programs of several nations, including the United States. In April 1993, the Paris Club of creditors rescheduled much of Russia's 1993 government-to-government debt obligation, including some of the debt owed on agricultural credits. This agreement was later extended through April 1994, requiring Russia to pay $1 billion during January-April, instead of the $3-$5 billion that would have been due without the extension. Further rescheduling beyond this extension have not yet been announced.

U.S. Provides Largest Share of FSU Agricultural Export Assistance and Donations

Since January 1991, the United States has provided over $7 billion in agricultural commercial credit guarantees, concessional financing, and donations to the FSU. Over $5 billion of this amount is in the form of short-term (3-year) commercial

GSM-102 export credit guarantees. In addition to GSM-102 credit guarantees allocated to the Soviet Union, six FSU countries (**Russia, Ukraine, Kazakhstan, Uzbekistan, Turkmenistan, and Estonia**) have received separate allocations beginning in fiscal 1992 (October/September).

At the end of November 1992, **Russia** defaulted on its GSM-102 debt payments and was suspended from the program. In September 1993, Russia and the United States negotiated a bilateral rescheduling agreement, and by the end of 1993 Russia had repaid nearly $450 million. However, Russia again defaulted in January 1994, although this payment was made in February. While Russia's repayment status varies daily, it was reported in early May that Russia was again in arrears. If Russia can remain current on its payments, it would be eligible for new credit if deemed credit worthy. However, Russia has not officially requested additional credits for 1994, and government officials have stated that imports, which are expected to continue declining, will be purchased mainly with cash, not credit.

With Russia suspended from the GSM-102 program in 1993, commercial sales of U.S. agricultural products to the FSU in fiscal 1993 fell off significantly, down more than 40 percent from fiscal 1992 levels. Projected fiscal 1994 exports are expected to fall 10-20 percent from fiscal 1993 levels. To continue U.S. agricultural exports to the region, increased levels of concessional financing and donations were offered to the FSU. This increase was largely made possible by an increase in the Food for Progress program's tonnage cap, and to a considerable extent financed fiscal 1993 and 1994 U.S. agricultural exports. However, very limited amounts of additional food aid have been announced as of May 1994, and it is expected that fiscal 1994 food aid for the FSU will be significantly lower than in fiscal 1993.

Other Donors Play Notable Role in FSU Export Assistance and Donations

Canadian food programming to the FSU has been mainly in the form of credits for commercial imports of agricultural goods, primarily grain. Since November 1990, Canada has provided close to $1.8 billion in commercial credits for the purchase of grain. Canada halted wheat and barley shipments in the fall of 1992, due to **Russian** defaults on repayment. Having rescheduled most of its arrears under the Paris Club, Russia is reportedly current on its rescheduled debt payments. However, because the amount owed Canada exceeds its credit line, Russia remains ineligible for new credit purchases.

Since 1990, the EU has pledged over $3 billion in agricultural export assistance and donations to the FSU, with more than 80 percent of this assistance in the form of EU-backed credits for the purchase of food and medicine. EU credit packages have been marked by significant delays due to Soviet political instability during 1991 and administrative difficulties related to the USSR's breakup. As part of its assistance packages, the EU has reserved part of its credit line for agricultural imports from Eastern Europe, subject to availability.

As with other credit programs, **Russia** missed some of its 1993 debt repayments to the EU. Confusion over the status of the debt under the Paris Club rescheduling agreement was cited as the reason for the missed payment. While the payment was reportedly made, recent statements by EU officials indicate that it is unlikely that additional EU loans or credit guarantees will be issued to the FSU in the near future. However, reports indicate that EU food aid may increase over the next 2 years, in order to reduce surplus stocks while meeting the cuts in subsidized exports required by the recent GATT agreement. Some of this additional aid could be allocated to the FSU. EU members France and Germany have also provided sizable credit and donation packages to the FSU, valued at $4 billion in total.

Turkey has pledged over $1.2 billion in agricultural credit and donations to the FSU since 1991, and has directed the bulk of its assistance to **Azerbaijan** and the nations of **Central Asia**. However, it is not clear how much of this assistance has been disbursed. In a variation on the EU's triangular credit allocations to finance East European exports, in 1993 Turkey reportedly purchased 100,000 tons of wheat from **Kazakhstan** (worth approximately $11 million). One-half was donated to **Azerbaijan** and the other half was sold to **Kyrgyzstan** on 1-year credit.

The Role of International Food Programming in FSU Reform

Differing from traditional aid programs that focus primarily on economic development and alleviating hunger and malnutrition, agricultural assistance to the FSU is aimed at: 1) supporting and furthering democratic and market reforms, 2) helping to ensure sufficient food supplies during the transition period, 3) bolstering popular support for market reforms, 4) maintaining agricultural exports to one of the world's largest importers, and 5) establishing new markets for high-value goods.

To a large extent, agricultural export and donations programs have met these goals, as they symbolize international support for FSU reforms, have targeted relief for vulnerable segments of the FSU population, provided food supplies to war-torn areas, and maintained agricultural exports to the region, albeit at lower levels. U.S. programs have also generated exports of U.S. foodstuffs not traditionally or recently imported by the FSU, such as pork, dairy products, peanuts, and vegetable oil.

However, these programs have not produced all of the positive effects intended by donors. Acute food-supply crises predicted by the popular press in the first year of post-Soviet reform never occurred, except in areas affected by military conflict. Per capita food consumption, inflated during the Soviet period by substantial subsidies, fell during the reform period--due not to a major disruption in supply, but to decreased demand. Price liberalization, which took place in most FSU countries in 1992, led to a reduction in purchasing power as consumer prices rose more quickly than wage increases, therefore leading to reduced consumer demand for income-elastic goods.

It is true that certain segments of society possessing limited purchasing power (the elderly, children, the urban poor) were

more negatively affected in terms of dietary intake relative to those with alternative means of income and food supply. However, for most of the population, despite reductions since the Soviet period, FSU per capita consumption remains higher than in countries with similar per capita income, and the FSU diet remains for the most part calorically adequate.

Food aid's ability to bolster popular support for economic reform, by lessening its negative effects, was limited. Nowhere is this clearer than in the recent elections in **Russia**, where parties opposing real market reforms won a majority in the new parliament and a significantly less reformist government was formed, largely as a protest against the drop in living standards that has resulted from an inconsistent reform strategy.

The ability of international export credit and food assistance to advance market reforms in the FSU was also marginal. Commercial credits and credit guarantees add to the FSU's already substantial external debt. Scarce hard currency that could have been used to support domestic reforms was used instead to service the debt, which was largely incurred by the USSR. **Russia's** repayment difficulties in 1992-1993 led to its suspension from several credit programs and required the rescheduling of a large part of the debt.

In particular, some **Russians** have questioned accumulating additional debt to finance agricultural imports from farmers in exporting countries instead of using the money to support Russian farmers. In addition, some critics in the West maintain that government-backed credits should not have been offered to the Soviet Union and later to its successor States, considering the region's severe financial difficulties and periodic political instability.

Finally, massive infusions of bulk commodities, such as grain, can perpetuate inefficiencies in the agricultural sector, by reducing incentives to continue restructuring for more efficient production and distribution. Lower-priced imports and donations can undercut domestic production. Assistance given to State traders and distributed by government ministries help perpetuate State control of agricultural marketing.

For example, high levels of grain imports, sustained in recent years by commercial credit guarantees, concessional credit, and donations, enabled authorities in the FSU to delay increases in farm prices and to sustain the centralized grain distribution and marketing system. While the average price of wheat imported by the FSU in 1992/93 (July/June) was around $125 per ton (excluding freight), **Russian** farmers received less than $40 a ton. However, the State provided massive subsidies that lowered the price of imported grain relative to domestic farm prices. Thus, instead of paying Russian farmers higher prices, which would have improved farm incomes, increased farm sales, and reduced waste, the State chose to purchase large amounts of foreign grain, and when commercial financing was no longer available, requested concessional loans and donations to maintain these imports. Obtaining imports with commercial and concessional credits, which allowed deferment of immediate payment in full, was easier for State planners than buying grain from domestic farmers at prices set by the market.

Expected Decrease in Food Programs, Focus To Shift

The level of total assistance to the FSU is expected to decline, and disbursement of previously pledged funds is likely to slow as policymakers assess recent political events and continue to seek consensus on how best to help the FSU. The primary challenge facing the international community is how to support FSU reforms, while ensuring that funds can be disbursed and used effectively. However, no clear consensus has emerged among the donor nations on formulating a consistent assistance strategy, or whether assistance should be provided at all until economic and political stability can be achieved.

On the one hand, some commentators have argued that the amount of assistance needed to support the FSU reform process is only a fraction of what was spent to defend against the Soviet military threat. However, critics have questioned investing large sums into the region and point to examples of strong growth in certain transition economies that was achieved without massive infusions of government aid.

These factors, combined with the uneven progress made by FSU countries in sustaining or initiating market reforms, explain why much of the assistance that has been pledged has not been delivered. Until this funding is disbursed, new aid programs are not likely to be announced. In addition, many donor nations are themselves facing uncertain economic conditions, making politicians reluctant to pledge additional sums of money for the FSU when funds are needed for domestic programs and deficit reduction.

Finally, recent signs of possible retrenchment on market reforms in several FSU countries, particularly in **Russia**, are likely to further hinder the development of an assistance strategy and slow the already sluggish rate of disbursement.

Given this setting, several policy shifts in agricultural assistance are expected:

First, the scale of food aid, in the form of donations and concessional loans, has begun to decrease, and is likely to fall even further in the near term. When **Russia** was suspended from the commercial GSM-102 program in 1993, the administration approved increased concessional export financing and food donations to the FSU. However, by April 1994, less than $245 million in food aid (not including freight or GSM-102) had been announced to date for fiscal 1994, with total fiscal 1994 aid expected to be significantly lower than last year's $1.4 billion (not including freight). To some degree this reduction in funding is due to the resumption of limited food aid volumes that had been lifted in fiscal 1993.

However, the lower levels of food aid announced by the United States and other donors in 1994 are also based on the acknowledgement that food problems in the FSU are largely the result of reduced purchasing power and supply disruptions caused by regional conflicts, and less public concern that widespread famine will occur in the FSU. Import demand for most agricultural commodities, especially grain, has fallen as a result of economic restructuring. Successful agricultural

CEE Triangular Trade

In order to encourage the resumption of FSU-Central East European trade flows, the EU allocated part of the agricultural credit and loans provided to the FSU for imports of CEE commodities, subject to availability.

For example, **Russia** has made triangular purchases with part of its allocated credit guarantees, amounting to more than $100 million, or less than 20 percent of the amount available for such purchases. While over half of the most recent EU credit package to the FSU was made available for triangular trade, reports indicate that only a small portion of the credit was used for that purpose, in part due to unfavorable weather conditions in 1992 that cut Eastern Europe's agricultural surpluses. [Sharon S. Sheffield]

reform will significantly change the structure and volume of FSU agricultural imports, and large quantities of food donations would not likely advance these necessary adjustments. However, some food aid, as part of larger humanitarian assistance, will likely be continued to alleviate food distribution problems in areas affected by military conflict, along with donations targeted at supplementing the diets of vulnerable groups.

Second, increased concerns over FSU credit worthiness, particularly Russia's, and expectations of decreased import demand, mean relatively fewer, government-backed commercial credits and guarantees are likely to be allocated or requested. Finally, it is expected that the focus of agricultural assistance will shift from providing bulk commodities toward more technical support and investment. This could expand the role of international organizations, such as the World Bank and the European Bank for Reconstruction and Development, as donors attempt to increase coordination and minimize costs.

The U.S. has already developed several technical assistance programs, with total budgeting valued at $150 million since fiscal 1992. These programs include:

- Setting up model farms and constructing on-farm storage,
- Placing U.S. agribusiness executives in the FSU agro-industrial sector,
- Providing fellowships to bring FSU mid-level agricultural specialists and managers to the U.S. for short-term training,
- Wholesale market development,
- Market news and analysis systems,
- Policy advice to agricultural policymakers,
- Farmer-to-farmer exchanges.

U.S. Agricultural Exports for Fiscal 1994 Projected Lowest in 7 Years

U.S. agricultural exports to the FSU in fiscal 1994 are forecast at $1.3 billion, down nearly 20 percent from fiscal 1993's reduced level, and the lowest in 7 years. Reasons for this continued decrease include lower FSU import demand, particularly for grain, and reduced fiscal 1994 export financing and donation levels. While U.S. exports of certain bulk commodities have declined, there has been growth in sales of some high-value products. The longer-term outlook for U.S. agricultural exports to the FSU is characterized by an expected continuation of lower bulk commodity sales, such as of grain, with some increase in exports of processed goods as the FSU economy stabilizes and private trading channels develop. [Sharon S. Sheffield]

As of May 1994, the United States has provided over $7 billion in export financing and food aid to the FSU since January 1991. The bulk of this financing is GSM-102 credit guarantees totaling over $5 billion. The remainder has been provided in the form of concessional credit and donations. Since fiscal 1991, nearly all U.S. agricultural exports to the FSU have been financed through these programs, accounting for nearly 40 million tons of U.S. agricultural products, primarily grain.

While U.S. exports in fiscal 1994 are forecast down for a second year in a row, some noticeable shifts in the commodity composition of FSU imports are taking place that could indicate growing demand for U.S. high-value agricultural goods. Over the long run, this trend is expected to continue, as FSU grain imports are not expected to return to the high levels of the 1980's. However, increases in high-value-product trade will largely depend on the rate of FSU economic growth, as well as the evolving FSU trade regime. For example, **Russia** and **Ukraine** recently introduced new import tariffs and taxes that greatly increased the rates applied to certain agricultural commodities, notably on some high-value products.

Decline in U.S. Exports to FSU Slows in Fiscal 1994

As of May 1994, U.S. agricultural exports to the FSU in fiscal 1994 are projected at $1.3 billion, down nearly 20 percent from fiscal 1993, and the lowest since fiscal 1987. Preliminary data (October-February) for fiscal 1994 show total exports actually up 37 percent compared to the corresponding period in fiscal 1993. This is largely the result of unusually large amounts of programmed fiscal 1993 food aid being shipped in fiscal 1994. Overall, little or no increase in FSU import demand, primarily due to reduced consumer demand that is the result of economic restructuring, as well as continued financial constraints is the primary reasons for this second year of lower U.S. exports.

However, significant fiscal 1994 increases are expected for U.S. exports of high-value products, such as meat (primarily pork and poultry), sugar and tropical products, and certain vegetable oils, in addition to steady growth in the sale of some fruits, nuts, and vegetables. This shift in FSU imports away from large quantities of bulk commodities, such as grain, to increased purchases of processed and semi-processed products, is expected to continue in fiscal 1994 and possibly grow during the next 2-3 years. While some of the FSU's high-value-product imports have been facilitated by U.S. export assistance and donation programs, import growth of these products is to a large extent the result of the FSU's economic restructuring that has either released, or in some cases created, consumer demand for new commodities and opened up commercial trade opportunities for private-sector imports of non-traditional commodities.

The transition to a market economy is also affecting FSU import demand for grains and oilseeds, traditionally the primary U.S. exports to the region. While FSU import demand for grains and oilseeds is not expected to return to the high levels of the late 1980's, coarse grain and protein meal exports may remain relatively stable, and possibly increase, as the FSU is expected to remain a coarse-grain- and protein-deficit region. Relatively lower FSU wheat import demand is expected, except for years of low output, due to more efficient and rational use, primarily in the reduced amount of wheat fed to livestock. However, some imports of milling quality wheat are expected to continue, as the quality of domestic wheat is slowly improved in response to greater price differentiation. In addition, deficit wheat regions in the far eastern regions of the **Russian Federation** may find that is more economical in terms of transportation costs to import wheat from the world market than purchase it from producers in Western Russia.

While U.S. coarse grain and protein meal exports could grow in the medium-to-long term, there are several factors that are expected to limit short-term increases. First, corn exports, the FSU's primary coarse grain import, may be hindered in the near term by higher U.S. corn prices, which could reach $118 a ton in fiscal 1994 (a 15-percent increase from 1993). Second, FSU feed grain and protein demand is derived from consumer demand for livestock products, which has been significantly reduced during the last 2-3 years. Third, domestic FSU grain and oilseed prices remain lower than world levels, which in the absence of import subsidies, makes use of locally produced feed ingredients more attractive. These factors, along with limited export financing, given the current ineligibility of most of the FSU countries from receiving

Table 20--U.S. agricultural exports to the FSU, fiscal 1988-1994

Commodity	1988	1989	1990	1991	1992	1993	1994 [1]
				$ million			
Wheat	822	820	550	194	1,029	566	121
Corn	541	1,872	1,849	979	737	493	261
Soybeans	172	90	76	99	122	10	5
Soybean meal	279	372	304	355	488	111	138
Poultry meat	--	--	82	62	41	27	100
Dairy	5	--	79	1	68	120	80
Tallow, inedible	29	17	22	10	14	5	--
Fruits, nuts, veg.	54	18	20	11	22	38	21
Cotton	31	--	1	1	--	5	--
Sugar & trop. prods.	--	--	--	14	12	46	72
Other	1	110	23	32	171	140	132
Total	1,934	3,299	3,006	1,758	2,704	1,561	930
				1,000 tons			
Wheat	8,829	5,294	3,739	2,451	8,797	4,529	994
Corn	5,585	15,573	16,326	9,077	6,533	4,965	2,527
Soybeans	831	299	342	441	543	46	19
Soybean meal	1,303	1,312	1,405	1,716	2,202	541	651

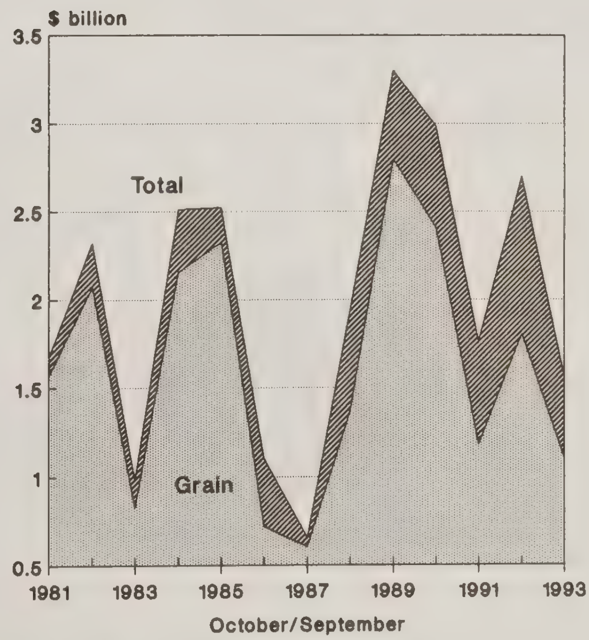
-- = Negligible or none.
[1] October-February 1993/94.
Source: USDA.

GSM-102 credit guarantees, will sharply constrain any growth in U.S. exports of these products in the near term. Moreover, **Russia**, the FSU's primary importer, has indicated that 1994 agricultural imports will continue to decline and that purchases will likely be made with cash, not credit, in order to avoid increasing its sizable external debt.

U.S. agricultural exports to the FSU in fiscal 1993 totaled almost $1.6 billion, 40 percent lower than fiscal 1992 (table 20). Decreased FSU import demand, particularly for grain, and financial constraints account for much of this decline. A sizeable increase in the level of fiscal 1993 food assistance programming did not offset the effect of **Russia's** continued suspension from the GSM-102 program during fiscal 1993, in part because a significant amount of fiscal 1993 food assistance was shipped in early fiscal 1994.

Beginning in fiscal 1972, grain, oilseed, and oilseed-product exports have accounted for over 90 percent of total U.S. agricultural sales to the FSU in value terms. However, by fiscal 1992, the share of grain and oilseeds fell below 90 percent and in fiscal 1993 accounted for only three-fourths of total sales (figures 7-8). Significant increases in the export of U.S. meat and dairy products, fruits, vegetables, nuts, seeds, sugar and tropical products (particularly coffee, cocoa, tea, and chocolate), and beverages were registered in fiscal 1993. Figure 9 shows that **Russia, Latvia, Belarus, Armenia,** and **Ukraine** were the primary FSU importers of U.S. consumer foods in fiscal 1993.

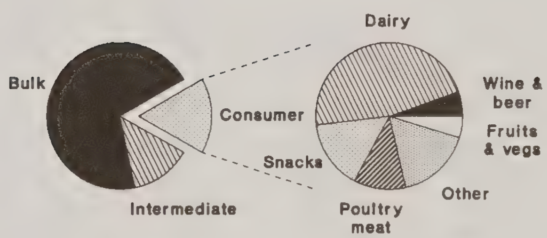
Figure 7
U.S. Agricultural Exports to the FSU, Fiscal 1981-93



Source: USDA.

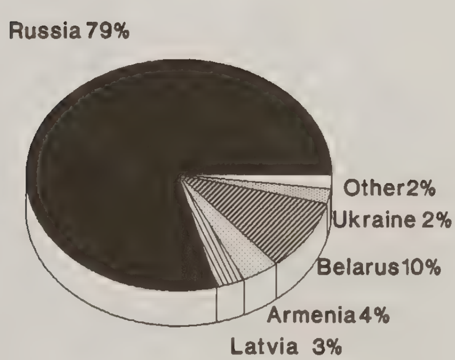
Historically low U.S. wheat exports to the FSU were sold through commercial channels. Less than half (2.8 million tons) of total fiscal 1993 wheat exports were eligible for Export Enhancement Program (EEP) bonuses, the lowest in the history of FSU EEP purchases (table 21). **Uzbekistan** bought much of the EEP wheat through countertrade or third-party transactions. Partial data for fiscal 1994 indicate the highest per-ton bonuses since fiscal 1991, when the average per-ton bonus equaled $45.

Figure 8
U.S. Agricultural Exports to the FSU, Fiscal 1993



Does not include trans-shipments.
Source: USDA.

Figure 9
U.S. Consumer Food Exports to the FSU, Fiscal 1993



Does not include trans-shipments.
Source: USDA.

Lower Fiscal 1994 U.S. Food Aid to FSU, Shift Toward Technical Assistance Expected

U.S. agricultural export assistance and donations to the FSU in fiscal 1994 are expected to fall significantly from the nearly $2 billion programmed in fiscal 1993, with an increased emphasis on technical assistance (see preceding article). Agricultural export assistance programming in fiscal 1993 was marked by a shift from commercial GSM-102 credit-guarantee allocations, which made up a large share of total U.S. assistance in fiscal years 1991-92, to concessional financing and donations, which in fiscal 1993 accounted for over 70 percent of total agricultural export financing and assistance (table 22). In addition to the continuation of lower GSM-102 allocations in fiscal 1994, concessional export assistance and donations have also fallen, such that total agricultural-export financing, food aid, and technical assistance account for only 6 percent of total U.S. aid programmed to date.

There are several reasons for these shifts: 1) Russia's nonparticipation in the GSM-102 program, 2) the inability of most FSU nations to qualify for GSM-102 guarantees, or only qualify for limited allocations, 3) limited funding for concessional credit and donation programs, 4) increased recognition that acute food supply problems were not as widespread as originally projected by the mass media, and 5) shifting emphasis on facilitating market reforms through exchange of know-how, training, and investment. While U.S. food donations to the FSU will continue to be provided selectively to alleviate food shortages in regions affected by civil war, and to supplement the diets of vulnerable groups (such as the elderly, children, and those unemployed), overall levels are expected to continue to fall, barring any great decrease in FSU food production.

Table 21--U.S. EEP wheat sales to the FSU [1]

Fiscal year	Amount	Bonus rate [2]	Total bonus
	Tons	*$/ton*	*$*
1988	8,804,000	32.01	281,798,920
1989	4,696,000	20.59	96,706,751
1990	3,799,350	19.96	75,822,425
1991	3,173,145	45.13	143,206,785
1992	8,417,745	41.53	349,596,280
1993	2,820,482	40.51	114,253,622
1994 [1]	539,800	60.98	32,918,316
Total	32,250,522	33.93	1,094,303,099

[1] Sales as of May 18, 1994.
[2] Weighted average.
Source: USDA.

Food donations and concessional financing in fiscal 1993 more than quadrupled from fiscal 1992, largely to make up for the loss of financial assistance that resulted from **Russia's** suspension from the GSM-102 program. Nearly 8 million tons of foodstuffs, valued at $1.4 billion, were provided through the P.L. 480 Title I, Section 416(b) and Food for Progress programs. **Russia** received over 65 percent of this programming in fiscal 1993, the second largest recipient in value terms was **Armenia**, with less than 10 percent of the total.

Record FSU Nonagricultural Exports to the United States in 1993

Total FSU exports to the United States in calendar year 1993 were more than double the amount sold in 1992, the highest in over 20 years, while FSU agricultural exports remained near 1992 levels (tables 23-24). This increase in total exports is in part the result of finding new markets, particularly hard currency markets, for FSU raw materials that were previously sold on a soft currency basis to Eastern Europe or to other FSU countries. In addition, trade agreements and the extension of MFN status to most of the FSU successor States may have facilitated increased levels of U.S.-FSU trade.

However, this increase in trade has not been without controversy, as several anti-dumping measures were taken against FSU exports of aluminum and ferrous metals to the U.S. (and other Western countries) during 1993. As a result, it is difficult to say whether or not the FSU will be able to maintain

Table 22--U.S. agricultural export and donation assistance to the FSU, fiscal 1991-94

	Fiscal year			
	1991	1992	1993	1994 [1]
	$ million			
GSM-102 commercial guarantees	1,915	2,590	523	40 [2]
Food aid, total [3] including:	0	354	1,425	244
P.L. 480, Title I	0	60	66	49
Food for Progress	0	72	958	107
Section 416(b)	0	125	301	73
DOD excess stock donations	0	62	42	0
Private donations	0	35	58	15
Technical assistance [4]	0	49	49	44
Total agriculture	1,915	2,993	1,997	328
Percent of total U.S. assistance	98	71	36	6

[1] Announced as of April 1994.
[2] Does not include $20 million unoperational credit for Ukraine.
[3] Programmed assistance, does not include freight donation.
[4] Estimate based on data from USDA and USAID.
Sources: USDA; USAID.

Table 23--U.S. trade with FSU, 1973-93

Year [1]	U.S. exports		U.S. imports	
	Total	Agricultural	Total	Agricultural
	$ million			
1973	1,287	1,017	204	5
1974	631	324	335	9
1975	1,871	1,170	243	7
1976	2,424	1,605	214	8
1977	1,637	1,053	221	11
1978	2,328	1,765	529	12
1979	3,749	3,000	873	15
1980	1,601	1,138	432	10
1981	2,450	1,685	357	12
1982	2,605	1,871	229	11
1983	2,002	1,473	341	10
1984	3,343	2,878	556	11
1985	2,460	1,923	407	9
1986	1,257	658	557	17
1987	1,492	938	408	22
1988	2,849	2,252	564	19
1989	4,412	3,597	713	20
1990	3,090	2,271	1,059	17
1991	3,538	2,495	802	12
1992	3,537	2,346	817	26
1993	3,721	1,758	2,050	25

[1] 1973-1978: total and agricultural exports adjusted for grain and oilseed transshipments through Canada, West Germany, Belgium, and the Netherlands. 1979-1993: total and agricultural exports adjusted for grain and oilseed transhipments through Canada.
Sources: USDA; U.S. Department of Commerce.

Table 24--U.S. agricultural imports from the FSU, 1990-93

Commodity	1990	1991	1992	1993
	$ million			
Casein and mixture	0.4	4.1	12.7	13.0
Furskins	9.6	3.5	7.0	5.3
Wool	--	0.9	--	--
Other animal prod.	4.9	0.9	1.7	2.0
Cotton	--	0.8	--	--
All other	2.3	1.5	4.4	4.6
Total	17.2	11.7	25.8	24.9

-- = Negligible or none.
Source: USDA.

this increase in total exports. However, it has been pointed out by both American and FSU commentators that free trade can be a more beneficial form of assistance than traditional aid programs, a position that would likely support continued FSU access to U.S. markets.

While the FSU was able to maintain its 1992 level of agricultural exports to the United States, it is unlikely that these exports will be increased much beyond current levels. As was the case in 1992, FSU agricultural exports in 1993 showed some diversification, as increased FSU sales of nontraditional exports including essential oils, rubber, spices, live animals, feathers and down, confectionery products, fruits, fish and fish products, and agricultural chemicals were registered in 1993.

GSM-102 Update: Recent Program Developments With the FSU

Summer 1993: USDA announced GSM-102 credit guarantees for **Estonia** and **Uzbekistan**. Estonia received $5 million to purchase cotton, while Uzbekistan was allocated $15 million for imports of U.S. wheat. The credit guarantees allocated to **Estonia** and **Uzbekistan** provide a 98-percent guarantee of the principal and guarantee interest rates equal to the prevailing rate for 52-week U.S. Treasury bills.

Ukraine received an additional $20 million of its total $200 million GSM-102 credit allocation for fiscal 1993. Originally, $70 million was made operational for the purchase of feed grains. The $20 million in GSM-102 released in mid-1993 was also allocated for feed grain imports.

Total fiscal 1993 allocations:

Russia: $525 million, of which $110 million was not utilized. Does not include $275 million announced in October 1992 that was never made operational.

Ukraine: $200 million, of which $90 million was made operational.

Estonia: $5 million.

Uzbekistan: $15 million.

October 1993: USDA announces the signing of a bilateral agreement between the United States and **Russia**, based on the April 1993 Paris Club agreement, to reschedule a portion of Russia's 1993 debt obligation. The U.S.-Russian bilateral agreement reschedules approximately $1.1 billion in debt that will be due to the Commodity Credit Corporation (CCC) and U.S. banks under the GSM-102 export-credit-guarantee program for the FSU and Russia. At the end of 1993, the CCC's exposure under these programs was nearly $4 billion. Russia also agrees to pay nearly $450 million by the end of 1993 in unrescheduled debt.

USDA announces fiscal 1994 GSM-102 allocations for **Ukraine** and **Turkmenistan**. In late 1993, Ukraine receives $40 million for the purchase of protein meal, of which $20 million is made available immediately. Turkmenistan receives a $5 million allocation for wheat imports.

January 1994: **Russia** completes the last of three payments totaling $450 million and is current on its repayment until mid-January, when it defaulted on over $90 million in rescheduled 1994 payments. Most of the arrears are repaid within days of the default.

February 1994: **Kazakhstan** receives a $15 million allocation for the purchase of soybeans.

March 1994: USDA announces that the $20 million of operational credit allocated to **Ukraine** will be shifted from protein meal to soybeans ($10 million) and breeder livestock ($10 million). The initial allocation of $40 million was designated for protein meal purchases. [Sharon S. Sheffield]

USDA Food Assistance Programs for the FSU

Beginning in fiscal 1992, several FSU nations received U.S. commodity donations and long-term financing for concessional purchases of foodstuffs. The three main USDA programs utilized for these purposes are P.L. 480 Title I, also known as the Food for Peace Program, Section 416(b), and the Food for Progress Program.

P.L. 480 Title I--Trade and Development Assistance--provides long-term financing for government-to-government concessional sales, with repayment terms of up to 30 years, grace periods of up to 7 years, and low interest rates. This program focuses on countries that have a shortage of foreign-exchange earnings and are experiencing difficulties in meeting their food needs through commercial channels.

Six countries, **Belarus, Moldova, Tajikistan, Turkmenistan, Ukraine**, and **Lithuania** received P.L. 480 Title I credit in fiscal 1993. Commodities purchased by these countries with fiscal 1993 P.L. 480 Title I included corn, and wheat and soybean meal. Planned P.L. 480 Title I allocations in fiscal 1994 were made for these same countries, except for **Tajikistan**.

Section 416(b) provides agricultural donations from surplus stocks of commodities owned by the CCC. Commodities included in this program may vary from year to year. The donated commodities may be sold or bartered, with USDA's approval, to finance distribution, handling, and processing costs, or to generate funding for programs in the receiving countries to aid the needy.

During fiscal 1993, all the FSU countries, with the exception of **Azerbaijan** and the **Baltics**, received Section 416(b) donations. The FSU's share of global regular Section 416(b) donations in fiscal 1993 was nearly 95 percent. Donations during fiscal 1993 included feed wheat, butter, butteroil, and corn. To date, allocations of fiscal 1994 Section 416(b) donations have been announced for all of the FSU countries, not including **Belarus, Turkmenistan**, and the **Baltics**. In addition, appeals have been made in fiscal 1994 by the World Food Program for Section 416(b) commodities to alleviate food shortages in Armenia, **Azerbaijan, Georgia**, and **Tajikistan**.

Food for Progress (FFPr) is an aid program implemented using funds from P.L. 480 Title I, Section 416(b), or the CCC. This program is targeted at countries that have made commitments to expand free enterprise in their agricultural economies.

During fiscal 1993, almost all of the FSU countries (with the exception of **Azerbaijan, Moldova, Turkmenistan, Lithuania**, and **Estonia**) received FFPr donations. Goods provided through FFPr include beans, bulgur, vegetable oil, infant formula, rice, wheat flour, wheat, evaporated milk, peas, and lentils.

In addition to the FFPr donations, a portion of the April 1993 agricultural credit and donation package announced for **Russia** at the Vancouver Summit was offered through the FFPr program, with funding primarily through a transfer of CCC funds to the P.L. 480 Title I budget. The Section 416(b) program provided $54.5 million worth of butter. The increase in FFPr spending required Congressional approval, and additional packages of this magnitude are not expected.

Initial fiscal 1994 allocations to date have been announced for **Russia, Kyrgyzstan, Tajikistan, Armenia**, and **Georgia**. First time donations under FFPr have been planned for **Azerbaijan**. [Sharon S. Sheffield]

FSU Grain Imports in 1994/95 Likely To Remain Weak

FSU grain imports in 1994/95 may drop below 1993/94 imports of about 20.5 million tons, the lowest in 15 years. Underlying the 1993/94 fall in demand are stable grain output and procurements in 1993, decreased feed use of grain caused by the market-induced decline of the livestock sector, continued hard currency constraints, and reduced State subsidization of imports for grain processors. However, a marked disruption in 1994 federal or regional grain procurements or an unexpected, sharp drop in output would substantially increase pressure on FSU governments to raise imports in 1994/95. [Jaclyn Y. Shend, Sharon S. Sheffield, Christian J. Foster]

FSU grain imports in 1994/95 (July/June) are forecast to remain near the 1993/94 low of 20.5 million tons, as market-induced economic restructuring, and financial constraints continue to hold import demand down. Only in the longer term, as successful implementation of market reforms leads to rising productivity, savings, and real income, are imports likely to pick up, although not likely reaching the historical high levels of the 1980's.

FSU import demand for grain dropped substantially from traditional levels (an annual average of 40 million tons during the 1980's) since the demise of the USSR and the introduction of market reforms in most FSU countries in 1992. Significant decreases in grain for feed use, caused by market-based downsizing of the livestock sector, coupled with fairly stable grain output and procurements, led to reduced import demand. Additionally, hard currency and other financial constraints in most of the FSU countries, particularly in **Russia**, which assumed the FSU's estimated $80-billion external debt, have been a major factor behind the region's reduced imports. Several FSU countries have also moved to discourage imports by eliminating import subsidies, and proposing import barriers.

FSU Grain Harvest Forecast for 1994 Relatively Stable

As a result of projected smaller area and a slightly lower yield, the USDA in May 1994 forecasted total FSU grain production at 170 million metric tons, about 5 percent lower than 1993 production of 178 million tons (table 25). (USDA total grain figures are on a cleanweight basis and include wheat, coarse grains, and milled rice. Official statistics published by the FSU countries also include pulses, buckwheat, other miscellaneous grains, and unmilled rice in their totals.) Projected smaller 1994 production in **Russia** and **Ukraine** may be partly offset by an increase in **Kazakhstan** (table 26).

With the system of State procurement maintained, and continued purchase, price, and subsidy guarantees by the FSU governments (which appear likely in 1994 in most FSU countries) production is expected to remain relatively stable. In the long term, however, successful implementation of market reforms should cause grain prices to rise to world levels and increase the liberalization of marketing channels. This would likely increase incentives to expand grain areas, utilize inputs with greater efficiency to raise yields, and therefore increase total output.

FSU grain output in 1993 was slightly below the 1992 harvest, and about the same as the 5-year average for 1988-1992. Despite a small reduction in grain area, the 1993 harvest might have topped the bumper 1992 crop if not for poor weather during fall harvesting in **Russia** and **Kazakhstan** (tables 27 and 28). Moreover, the increasing debt of the Russian and Kazakh Governments to farmers for grain procurement may have reduced incentives and created financial difficulties in purchasing fuel and spare parts to bring in the harvest. In Russia, about 3 million hectares of grain went unharvested, and in Kazakhstan nearly half a million. Grain production in 1993 in **Ukraine**, however, increased nearly 20 percent from the preceding year, primarily as a result of good weather and continued State support to grain producers (table 29). Reportedly, in July 1993, Ukraine raised grain procurement prices near world market levels, 478,000 karbovantsy per ton (about $106).

In **Belarus, Moldova,** and the **Central Asian** countries, 1993 grain crops were also up from a year earlier, as a result of good yields and larger area (table 30). In addition, the governments of these countries substantially increased procurement prices for the 1993 grain crops, which gave farmers the incentive to successfully carry out the harvest.

Spring Grain Area in 1994 May Largely Offset the Drop in Winter Grain Area

Total FSU grain area in 1994 is projected at 96.4 million hectares, 3 percent smaller than in 1993, and 6 percent down from the 5-year average for 1988-1992. FSU total grain area has been steadily declining since 1980, resulting in a nearly 20-percent drop in the last 14 years. During the 1980's, grain area was reduced in order to expand feed-crop area and fallow. In recent years, however, both forage-crop area and fallowed land area have fallen along with grain area. Increasing input costs may have influenced farmers to reduce total sown area.

Total FSU area seeded in the fall of 1993 to winter grains fell more than 10 percent, and autumn 1993 plowing for seeding in the spring of 1994 was also down about 10 percent. However, as of mid-May 1994, spring grain seeding in **Russia** roughly matched the 1993 pace, and in **Ukraine** was nearly

Table 25--Area, yield, and production of selected grains (cleanweight), FSU [1]

Year	Wheat	Barley	Rye	Oats	Millet	Corn	Coarse grains	Rice [2]	Total grain
Area				*Million hectares*					
1980	61.5	31.6	8.6	11.8	2.9	3.0	57.9	0.7	120.1
1981	59.2	31.8	7.6	12.5	2.7	3.5	58.0	0.6	117.8
1982	57.3	29.7	9.8	11.5	2.8	4.2	58.0	0.5	115.8
1983	50.8	31.7	10.3	12.4	2.9	3.9	61.2	0.7	112.7
1984	51.1	30.4	9.4	12.8	2.6	3.9	59.2	0.7	111.0
1985	50.3	29.1	9.5	12.6	2.8	4.5	58.5	0.7	109.5
1986	48.7	30.0	8.7	13.2	2.5	4.2	58.6	0.6	107.9
1987	46.7	30.7	9.7	11.8	2.8	4.6	59.5	0.7	106.9
1988	48.1	29.7	10.1	10.9	2.6	4.4	57.8	0.7	106.6
1989	47.6	27.6	10.7	10.8	2.8	4.1	56.0	0.7	104.4
1990	48.2	26.2	10.6	10.6	2.9	2.8	53.1	0.6	101.9
1991	45.9	28.6	8.6	10.6	3.0	3.0	53.9	0.6	100.4
1992	47.1	27.2	10.1	10.0	3.1	2.7	53.1	0.6	100.8
1993	45.0	29.6	8.5	9.9	2.3	3.0	53.2	0.6	98.8
1994	43.8	30.0	6.3	10.0	2.4	3.2	52.0	0.6	96.4
Yield				*Tons per hectare*					
1980	1.49	1.26	1.07	1.15	0.44	3.18	1.27	2.86	1.29
1981	1.28	1.04	1.15	0.87	0.61	2.65	1.09	2.50	1.20
1982	1.38	1.33	1.36	1.27	0.81	3.53	1.46	2.80	1.42
1983	1.42	1.44	1.52	1.32	0.75	3.41	1.52	2.14	1.48
1984	1.26	1.26	1.35	1.30	0.66	3.47	1.40	2.29	1.34
1985	1.44	1.47	1.49	1.42	0.95	3.21	1.57	2.14	1.51
1986	1.76	1.65	1.59	1.44	0.89	2.95	1.65	2.52	1.71
1987	1.67	1.74	1.65	1.35	1.31	3.24	1.75	2.41	1.71
1988	1.64	1.36	1.67	1.21	1.11	3.62	1.55	2.52	1.60
1989	1.83	1.62	1.70	1.39	1.35	3.69	1.73	2.29	1.78
1990	2.11	2.01	2.10	1.47	1.10	3.47	1.95	2.30	2.03
1991	1.57	1.45	1.71	1.21	0.53	3.27	1.49	2.16	1.53
1992	1.90	1.93	1.93	1.41	0.72	2.62	1.80	1.99	1.85
1993	1.87	1.75	1.74	1.47	0.83	3.16	1:74	2.03	1.80
1994	1.74	1.80	1.84	1.40	0.97	3.23	1.77	2.12	1.76
Production				*Million tons*					
1980	91.5	39.8	9.2	13.5	1.3	9.5	73.3	2.0	166.8
1981	75.8	33.0	8.7	10.8	1.7	9.4	63.5	1.5	140.8
1982	78.9	39.5	13.4	14.6	2.3	14.7	84.5	1.4	164.8
1983	72.2	45.7	15.7	16.4	2.2	13.3	93.2	1.5	166.9
1984	64.2	38.4	12.7	16.7	1.7	13.6	83.1	1.6	148.9
1985	72.6	42.6	14.2	17.8	2.7	14.4	91.7	1.5	165.8
1986	86.0	49.5	13.8	18.9	2.2	12.5	96.8	1.6	184.3
1987	77.3	53.3	16.1	15.9	3.6	14.8	103.8	1.6	182.7
1988	78.8	40.5	18.9	13.2	2.9	16.0	89.6	1.7	170.1
1989	87.2	44.9	18.3	15.0	3.7	15.2	97.1	1.5	185.8
1990	101.9	52.5	22.2	15.5	3.2	9.9	103.3	1.4	206.6
1991	72.0	41.5	14.7	12.9	1.6	9.8	80.4	1.3	153.7
1992	89.7	52.4	19.4	14.1	2.2	7.1	95.2	1.2	186.2
1993	84.2	51.9	14.7	14.6	1.9	9.3	92.4	1.3	177.8
1994	76.3	53.8	11.6	14.0	2.3	10.4	92.2	1.3	169.8

[1] Official USDA data do not include buckwheat, pulses, misc.; 1993 is preliminary; 1994 is projected.
[2] Milled rice. Source: USDA.

Table 26--Area, yield, and production of total grain (cleanweight), FSU countries [1]

Country	1989	1990	1991	1992	1993 [2]	1994 [3]
Area			*1,000 hectares*			
Russian Fed.	59,924	58,147	56,923	57,912	55,863	53,350
Ukraine	13,421	12,784	12,873	12,165	12,272	12,225
Belarus	2,434	2,446	2,431	2,551	2,624	2,670
Moldova	730	667	751	665	753	713
Kazakhstan	23,335	22,915	22,230	21,924	21,618	21,450
Uzbekistan	861	983	1,056	1,190	1,320	1,455
Kyrgyzstan	526	534	553	573	637	639
Tajikistan	171	212	220	249	234	209
Turkmenistan	181	185	237	327	438	630
Armenia	123	130	147	174	172	162
Azerbaijan	385	575	639	618	578	528
Georgia	206	256	277	257	256	246
Lithuania	999	995	1,017	1,124	1,000	1,030
Latvia	655	661	631	676	681	690
Estonia	388	387	410	413	368	395
Yield			*Tons per hectare*			
Russian Fed.	1.65	1.90	1.50	1.77	1.68	1.64
Ukraine	3.56	3.70	2.82	2.89	3.39	3.09
Belarus	2.85	2.76	2.47	2.75	2.78	2.70
Moldova	4.34	3.65	3.99	2.96	4.02	3.43
Kazakhstan	0.79	1.22	0.52	1.33	0.98	1.08
Uzbekistan	1.59	1.73	1.62	1.72	1.50	1.54
Kyrgyzstan	3.03	2.80	2.48	2.64	2.51	2.56
Tajikistan	1.58	1.33	1.22	0.97	1.23	1.25
Turkmenistan	1.99	2.34	1.97	2.12	2.02	1.87
Armenia	1.37	1.88	2.01	1.74	1.82	1.81
Azerbaijan	2.14	2.35	2.08	2.10	1.94	1.90
Georgia	2.25	2.57	1.83	1.72	1.65	1.61
Lithuania	3.00	3.06	3.09	1.94	2.51	2.59
Latvia	2.36	2.37	2.03	1.65	1.78	1.94
Estonia	2.44	2.41	2.24	1.42	1.83	1.87
Production			*1,000 tons*			
Russian Fed.	98,925	110,567	85,581	102,421	93,815	87,300
Ukraine	47,734	47,256	36,279	35,153	41,555	37,800
Belarus	6,945	6,745	5,996	7,027	7,300	7,210
Moldova	3,168	2,437	2,993	1,967	3,026	2,446
Kazakhstan	18,388	27,908	11,589	29,167	21,135	23,250
Uzbekistan	1,371	1,703	1,708	2,052	1,982	2,242
Kyrgyzstan	1,593	1,496	1,369	1,510	1,599	1,639
Tajikistan	270	282	269	241	287	261
Turkmenistan	360	432	466	693	885	1,180
Armenia	169	245	295	302	313	293
Azerbaijan	822	1,349	1,327	1,296	1,124	1,004
Georgia	464	658	506	443	423	397
Lithuania	2,993	3,046	3,138	2,186	2,510	2,670
Latvia	1,546	1,568	1,278	1,114	1,209	1,340
Estonia	948	933	919	587	675	740

[1] Official USDA data for total grain include: wheat, barley, rye, oats, millet, corn, and milled rice; but do not include pulses, buckwheat, and misc.
[2] Preliminary.
[3] Projected.
Source: USDA.

Table 27--Area, yield, and production of selected grains (cleanweight), Russian Federation [1]

Year	Wheat Winter	Wheat Spring	Wheat Total	Rye	Corn	Barley	Oats	Millet	Buck-wheat [2]	Rice	Pulses [2]	Misc. [2]	Total grain
Area						*1,000 hectares*							
1981-85 avg.	8,750	19,550	28,300	6,850	940	17,241	10,575	1,640	1,145	336	3,802	81	70,910
1986-90 avg.	8,554	16,001	24,555	7,522	1,131	15,405	9,834	1,710	1,124	301	3,960	102	65,644
1990	9,731	14,513	24,244	7,989	869	13,723	9,100	1,936	1,278	287	3,556	86	63,068
1991	9,191	13,961	23,152	6,461	733	15,281	9,032	1,997	1,646	267	3,163	51	61,783
1992	10,799	13,485	24,284	7,574	810	14,564	8,540	1,875	1,709	265	2,266	52	61,939
1993	10,604	12,914	23,518	5,987	805	15,447	8,387	1,459	1,785	260	3,150	58	60,856
Yield						*Tons per hectare*							
1981-85 avg.	2.01	1.10	1.37	1.30	2.90	1.26	1.23	0.81	0.41	3.37	0.99	1.25	1.30
1986-90 avg.	2.82	1.19	1.77	1.64	2.87	1.58	1.28	1.19	0.56	3.49	1.13	2.87	1.59
1990	3.37	1.16	2.05	2.05	2.82	1.98	1.35	1.00	0.62	3.13	1.38	0.73	1.85
1991	2.81	0.94	1.68	1.64	2.68	1.45	1.15	0.52	0.41	2.90	0.79	0.96	1.44
1992	2.62	1.33	1.90	1.83	2.64	1.85	1.32	0.82	0.61	2.85	1.35	0.98	1.73
1993	2.69	1.08	1.81	1.53	3.04	1.72	1.38	0.77	0.45	2.64	1.30	0.69	1.63
Production						*1,000 tons*							
1981-85 avg.	17,548	21,106	38,654	9,025	2,757	21,732	12,981	1,331	474	1,132	3,774	101	91,961
1986-90 avg.	24,335	19,206	43,553	12,448	3,296	23,909	12,576	2,059	643	1,054	4,433	291	104,261
1990	32,711	16,825	49,596	16,431	2,451	27,235	12,326	1,946	809	896	4,923	63	116,676
1991	25,800	13,100	38,899	10,624	1,969	22,174	10,372	1,040	688	773	2,506	49	89,094
1992	28,270	17,900	46,170	13,887	2,135	26,989	11,241	1,535	1,038	754	3,055	51	106,855
1993	28,500	13,980	42,480	9,151	2,447	26,628	11,539	1,124	800	686	4,105	40	99,000

na = Not available.
[1] Official Russian data. [2] USDA data do not include these grains.
Sources: Goskomstat Rossii.

completed after proceeding nearly twice as fast as the year before. In 1993, spring grain area increased slightly, despite a 20-percent drop in fall plowing.

In **Russia** and **Kazakhstan,** winter area seeded for the 1994 crop fell 20 percent, primarily the result of heavy autumn rains, a late start caused by delays in harvesting the 1993 crops, and disruptions in the supply of fuels and spare parts. In addition, high input costs may have influenced farmers to sow less. Despite setting high grain-procurement prices, the Russian and Kazakh Governments often failed to make timely payments to farms for the delivered grain, while input prices continued to rise sharply. Moreover, 1993 grain profitability in **Russia** went down because of increasing production costs, which may also partly explain the drop in winter plantings (table 31). Grain, however, remains more profitable than most other crops, likely resulting in only small changes in total 1994 grain area. In **Ukraine,** area seeded to winter grains for the 1994 harvest increased 5 percent, mainly because of favorable autumn weather and continued State subsidies to producers.

Expansion in 1994 spring grain area in the FSU is estimated to largely offset the decline in winter grain area. Both in **Russia** and **Ukraine,** most farms reported sufficient supplies of grain seeds for the 1994 spring sowing (according to the Russian and Ukrainian Ministries of Agriculture). Moreover, to help finance spring sowing, in February 1994 the **Russian** Government approved a draft resolution of about 1.3 trillion rubles (over $800 million) worth of credit for spring sowing operations. The **Ukrainian** Government was also planning to issue 2 trillion karbovantsy (over $160 million) to agricultural producers for spring field work, as well as other financial assistance to assure that farms have adequate supplies of mineral fertilizers, pesticides, spare parts for agricultural machinery, and fuel.

If the governments of FSU countries maintain the State procurement system and pay producers for past grain deliveries, total grain area may remain unchanged, or even increase, in certain FSU countries in 1994. For example, in **Ukraine** 1993 grain area increased 3 percent, despite high input prices and reported shortages of fuel. By February 1994 the Ukrainian

Table 28--Area, yield, and production of selected grains (cleanweight), Kazakhstan [1]														
Year	Wheat			Rye	Corn	Barley	Oats	Millet	Buck-wheat [2]	Rice	Pulses [2]	Misc.[2]	Total grain
	Winter	Spring	Total										
Area						*1,000 hectares*							
1981-85 avg.	1,089	15,246	16,335	354	123	6,737	446	802	198	137	169	51	25,352
1986-90 avg.	1,086	13,764	14,850	598	128	6,819	415	725	193	131	172	79	24,109
1990	1,199	12,871	14,070	769	129	6,660	382	781	218	124	159	64	23,356
1991	1,206	12,250	13,456	562	121	6,614	512	847	318	118	152	53	22,753
1992	1,220	12,657	13,877	623	126	5,718	456	1,003	447	121	140	85	22,596
1993	1,313	11,437	12,750	na	117	7,001	549	527	409	112	119	na	22,250
Yield						*Tons per hectare*							
1981-85 avg.	0.92	0.75	0.76	0.60	4.14	0.79	0.97	0.47	0.40	4.38	0.62	0.47	0.79
1986-90 avg.	1.53	0.92	0.97	0.92	3.88	0.99	1.10	0.80	0.51	4.51	0.80	0.59	1.00
1990	1.64	1.11	1.15	1.09	3.44	1.28	1.60	1.20	0.80	4.65	0.97	0.83	1.22
1991	1.02	0.46	0.51	0.85	2.72	0.47	0.45	0.28	0.43	4.40	0.43	0.36	0.53
1992	1.43	1.31	1.32	0.85	2.91	1.49	1.59	0.45	0.51	3.86	0.88	1.04	1.32
1993	1.47	0.84	0.91	na	3.03	1.02	1.46	0.44	0.32	3.61	0.79	na	0.97
Production						*1,000 tons*							
1981-85 avg.	1,018	11,380	12,398	217	503	5,364	420	374	80	597	105	24	20,082
1986-90 avg.	1,671	12,728	14,399	568	493	6,737	456	583	98	590	138	46	24,108
1990	1,966	14,231	16,197	839	442	8,500	610	940	174	579	154	53	28,488
1991	1,230	5,659	6,889	480	330	3,085	231	235	136	521	66	19	11,992
1992	1,743	16,542	18,285	525	368	8,511	727	447	230	467	123	88	29,772
1993	1,934	9,651	11,585	na	355	7,149	802	232	130	403	94	na	21,631

na = Not available.
[1] Official Kazakh data. [2] USDA data do not include these grains.
Source: Goskomstat Kazakhstana.

Government reportedly fully paid farmers for 1993 grain procurements, which may influence farmers to maintain, or even increase, spring grain area in 1994. The Central Asian countries have also been increasing grain area because of their governments' policies to achieve grain self-sufficiency. In **Uzbekistan**, total grain area increased about 30 percent over the last 3 years, while in **Turkmenistan** it more than doubled. (Winter seedings for the 1994 harvest, increased 44 percent in Uzbekistan and 38 percent in Turkmenistan.) In November 1993, the Uzbek Government increased procurement prices 100 percent for the 1994 harvest, which also contributed to expansion of 1994 grain area.

Wheat and Coarse Grain Areas Reflect Changes in Procurement Prices

USDA's May 1994 projection puts total FSU wheat production at 76.3 million tons, down nearly 10 percent from a year earlier. Wheat yields in 1994 are projected down from 1993 because of above-average winterkill, while total wheat area is estimated down as a result of reduced winter seeding.

In **Russia**, however, larger 1994 spring wheat area is estimated to have nearly offset the reduction in winter wheat plantings. Wheat is one of the most profitable grain crops. In September 1993, procurement prices for hard wheat (grade 3) were set at 77,000 rubles per ton ($72), higher than the commodity exchange price of about 63,000 rubles per ton ($59), and close to the U.S. Gulf price (minus EEP) of about $80 (figure 10 and table 32). The Russian Government provided these large incentives for farmers to grow and sell wheat to the State in an attempt to reduce wheat imports.

In 1993, sown spring wheat area in the **Russian Federation** increased for the first time since 1986, mainly because the State procurement prices for wheat rose sharply prior to spring sowing. Poor weather and financial difficulties during fall of 1993 caused over 1 million hectares of spring wheat to go unharvested, which resulted in a smaller final spring wheat area.

In addition, winter wheat area, as a share of total winter grain area, has risen in recent years. From 1988 through 1992,

Table 29--Area, yield, and production of selected grains (cleanweight), Ukraine [1]

Year	Wheat: Winter	Wheat: Spring	Wheat: Total	Rye	Corn	Barley	Oats	Millet	Buck-wheat [2]	Rice	Pulses [2]	Misc. [2]	Total grain
Area						*1,000 hectares*							
1981-85 avg.	6,824	21	6,844	705	2,161	3,496	657	327	345	35	1,543	59	16,172
1986-90 avg.	6,407	11	6,419	572	2,124	3,548	596	274	343	33	1,567	49	15,525
1990	7,568	9	7,577	519	1,234	2,728	492	205	350	28	1,424	26	14,583
1991	7,013	10	7,023	491	1,462	3,190	496	188	399	23	1,376	23	14,671
1992	6,315	14	6,328	499	1,160	3,451	495	207	449	25	1,271	18	13,903
1993	na	na	5,752	498	1,330	3,965	508	196	446	23	na	na	14,213
Yield						*Tons per hectare*							
1981-85 avg.	1.64	1.93	2.64	1.59	2.98	2.17	1.75	1.33	0.83	4.24	1.60	1.22	2.34
1986-90 avg.	3.64	2.73	3.64	1.99	3.52	2.87	2.34	1.78	0.95	4.72	1.85	1.22	3.06
1990	4.01	2.97	4.01	2.43	3.83	3.36	2.65	1.63	1.16	4.19	2.28	1.00	3.49
1991	3.01	2.16	3.01	2.00	3.24	2.52	1.90	1.76	0.90	4.38	1.42	0.87	2.63
1992	3.08	2.50	3.08	2.32	2.46	2.93	2.52	1.09	0.78	3.72	2.35	0.83	2.77
1993	na	na	3.79	2.41	na	3.18	2.95	na	na	na	na	na	3.21
Production						*1,000 tons*							
1981-85 avg.	18,056	39	18,095	1,119	6,510	7,562	1,139	443	288	148	2,505	72	37,881
1986-90 avg.	23,479	31	23,510	1,197	7,344	10,035	1,384	498	335	158	2,895	60	47,415
1990	30,348	26	30,374	1,259	4,737	9,169	1,303	338	420	117	3,266	26	51,009
1991	21,133	22	21,155	982	4,747	8,047	945	338	373	102	1,965	20	38,674
1992	19,473	35	19,507	1,156	2,851	10,106	1,246	226	351	93	2,986	15	38,537
1993	na	na	21,800	1,200	na	12,600	1,500	na	na	na	na	na	45,600

na = Not available.
[1] Official Ukrainian data. [2] USDA data do not include these grains.
Source: Minstat Ukrainy.

Russian winter wheat accounted for about 50 percent of total winter grain area, compared to more than 60 percent in 1993 and about 65 percent in 1994. Despite a decline in winter grain area in the last 2 years, winter wheat area has decreased considerably less than total winter grain area. Instead, farms reduced rye area, reflecting their preference for more profitable wheat. For example, in the fall of 1993, sown area to winter wheat in Russia fell 12 percent, compared to a 34-percent drop in winter rye area (figure 11).

FSU coarse grain output in 1994 is projected by USDA at 92.2 million tons, relatively unchanged from a year earlier. The small rise in yields is estimated to have offset a fall in area. Smaller coarse grain area mainly resulted from a sharp drop in **Russian** rye area. In 1993, rye prices were below most other major grains and considerably below wheat prices, which is the other major winter grain (figure 12). After producing an abundant rye crop in 1993, and faced with low demand, Russian farmers likely chose to plant less rye. From 1990 to 1992, rye area accounted for about 40 percent of total winter grain area, but in 1993 its share fell to about 35 percent, and to less than 30 percent in 1994.

FSU barley area, however, is expected to further increase in 1994. Spring barley area in 1993 was expanded in **Russia, Ukraine,** and **Kazakhstan,** mainly to offset the drop in winter seeding. Although procurement prices for barley are not as high as for wheat, barley remains a relatively profitable crop. For most of 1993, **Russian** procurement prices for barley were about the same as commodity exchange prices and not far below world prices, which may influence farmers to grow more barley in 1994.

FSU corn area in 1994 is estimated up from 1993. In **Ukraine,** the largest FSU corn producer, 1993 corn area rebounded after a large decline the year before. Reportedly, Ukrainian farms had sufficient seed corn for the 1994 sowing. Despite continued high demand for higher-quality protein feeds, **Russian** procurement prices for corn in 1993 did not increase as rapidly as for other grains, such as wheat and barley, and were considerably below world prices (figure 13). Therefore, in 1993

Table 30--Area, yield, and production of total grain (cleanweight), FSU countries [1]

Country	Average 1986-90	1990	1991	1992	1993 [2]
Area			1,000 hectares		
Russian Fed.	65,641	63,068	61,783	61,939	60,856
Ukraine	15,525	14,583	14,671	13,903	14,213
Belarus	2,709	2,645	2,606	2,698	2,774
Moldova	746	746	837	747	835 [3]
Kazakhstan	24,109	23,356	22,753	22,596	22,250
Uzbekistan	929	1,008	1,080	1,212	1,340 [3]
Kyrgyzstan	540	538	557	576	641
Tajikistan	208	230	232	264	244 [3]
Turkmenistan	184	187	240	330	441 [3]
Armenia	134	138	152	181	174 [3]
Azerbaijan	478	583	651	632	585 [3]
Georgia	260	270	289	275 [3]	274 [3]
Lithuania	1,128	1,084	1,087	1,165	1,080 [3]
Latvia	691	686	657	703	698 [3]
Estonia	396	396	418	424	378
Total FSU	113,679	109,518	108,013	107,645	106,783 [3]
Yield			Tons per hectare		
Russian Fed.	1.59	1.85	1.44	1.72	1.63
Ukraine	3.06	3.49	2.63	2.77	3.21
Belarus	2.52	2.66	2.42	2.68	2.70
Moldova	3.39	3.40	3.70	2.81	3.83 [3]
Kazakhstan	1.00	1.22	0.53	1.32	0.97
Uzbekistan	1.81	1.88	1.73	1.86	1.57 [3]
Kyrgyzstan	3.03	2.80	2.47	2.63	2.50
Tajikistan	1.48	1.31	1.23	0.97	1.23 [3]
Turkmenistan	2.01	2.36	2.15	2.23	2.04 [3]
Armenia	2.02	1.84	1.99	1.71	1.72 [3]
Azerbaijan	2.36	2.34	2.07	2.08	1.88 [3]
Georgia	2.37	2.47	2.04	1.64	1.59 [3]
Lithuania	2.67	3.01	3.08	1.91	2.50 [3]
Latvia	2.17	2.36	2.03	1.64	1.72 [3]
Estonia	2.11	2.41	2.25	1.40	1.85
Total FSU	1.73	1.99	1.49	1.81	1.76 [3]
Production			1,000 tons		
Russian Fed.	104,261	116,676	89,094	106,855	99,000
Ukraine	47,415	51,009	38,674	38,537	45,600
Belarus	6,836	7,035	6,296	7,230	7,500
Moldova	2,556	2,539	3,106	2,100	3,200
Kazakhstan	24,108	28,488	11,992	29,772	21,631
Uzbekistan	1,692	1,899	1,908	2,257	2,100
Kyrgyzstan	1,635	1,503	1,374	1,516	1,600
Tajikistan	309	303	286	257	300
Turkmenistan	353	449	516	737	900
Armenia	270	254	304	310	300
Azerbaijan	1,130	1,364	1,346	1,312	1,100
Georgia	619	666	510	450 [3]	435 [3]
Lithuania	3,009	3,265	3,348	2,225	2,700
Latvia	1,500	1,622	1,336	1,152	1,200
Estonia	838	954	939	594	700
Total FSU	196,547	218,026	161,029	195,304	188,266 [3]

[1] Official total grain data as reported by the FSU countries, which include wheat, barley, rye, corn, oats, millet, buckwheat, unmilled rice, and pulses. [2] Preliminary. [3] Estimates.
Sources: Goskomstat; Statkom SNG.

Table 31--Production cost and profitability of selected crops, Russian Federation

Crops	1980	1985	1990	1991	1992	1993 [1]
Production cost [2]			Rubles per centner			
Grain	8.3	10.6	12.1	20.8	191	2,100
Sunflowerseed	9.9	11.4	15.6	25	305	3,200
Sugarbeets	4.2	4.3	4.6	7.7	102	1,200
Potato	13.9	19.1	24.4	41.3	313	3,600
Vegetable	11.3	12.8	16.7	37.3	393	5,800
Profitability [3]			Percent			
Grain	35.1	49.4	158.2	103.7	304.8	127
Sunflowerseed	88.8	119.3	144.6	231.4	381.0	167
Sugarbeets	-19.1	42.6	26.3	-1.8	95.0	59
Potato	-7.1	6.5	24.4	120	149.7	66
Vegetable	12.9	16.5	41.5	97.4	98.8	61
Inflation rate	--	--	5.3	92.6	1,090	900

-- = Not applicable.
[1] Peliminary.
[2] Cost of production (*sebestoimost'*) in the State sector.
[3] Profitability (*rentabilnost'*) is the difference between revenue and prime cost of production, divided by the latter.
Source: Goskomstat Rossii.

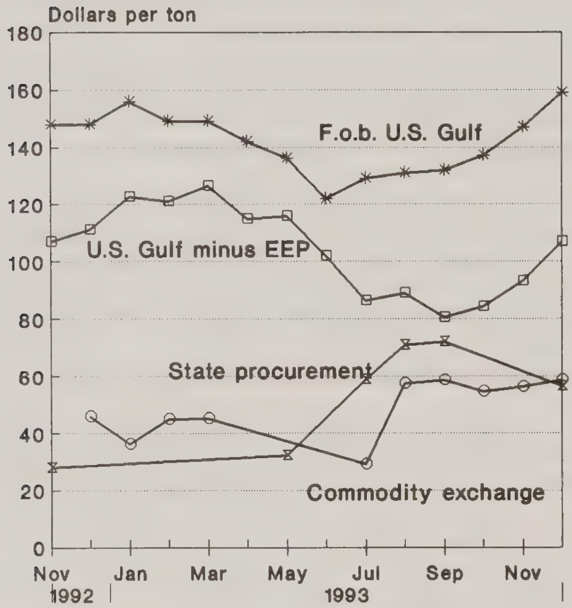
Russian corn area remained unchanged, likely as farmers found it more profitable to plant wheat or barley, instead of highly intensive corn. In the long term, however, as corn prices approach world prices, FSU corn area will increase.

Grain Yields in 1993 Did Not Reflect Lower Input Use

Grain yields in 1994 are projected slightly below 1993, but at the same level as the 1988-92 5-year average. Winterkill was reportedly above average for the FSU countries as a whole. While temperatures remained within normal ranges during most of the winter, parts of November 1993 and February 1994 were unusually cold, resulting in localized winterkill in some areas of the North Caucasus in **Russia, Moldova**, and **Ukraine**, where snow cover was shallow or nonexistent. In Ukraine, winterkill was reported at 30 percent, which is above average. Soil moisture supplies, however, were good for the spring germination in most of the major FSU agricultural regions.

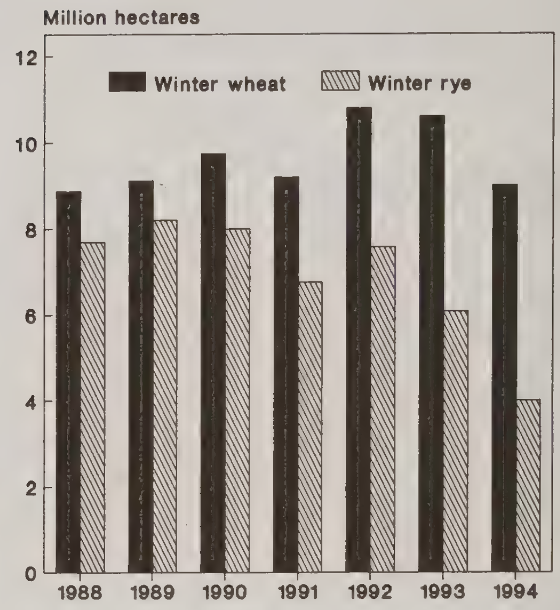
In 1993, FSU grain yields fell only slightly from a year earlier, but were higher than the 1988-1992 average. The decline in 1993 yields resulted mainly because of poor weather during the fall harvest. Despite a further reduction (nearly 30 percent in **Russia**) in mineral fertilizer use in 1993, yields did not appear to have been significantly affected (figure 14). Price liberalization motivated farms to use inputs more efficiently, and weather was favorable throughout most of the growing season.

Figure 10
Hard Wheat Prices, Russian Federation



State proc. and commodity ex. prices are for hard wheat #3, converted to $ terms; U.S. Gulf price is for #2 hard winter wheat.
Sources: Krest'yanskie vedomosti; USDA.

Figure 11
Winter Wheat and Winter Rye Area, Russian Federation



1994 is projected.
Source: Goskomstat Rossii.

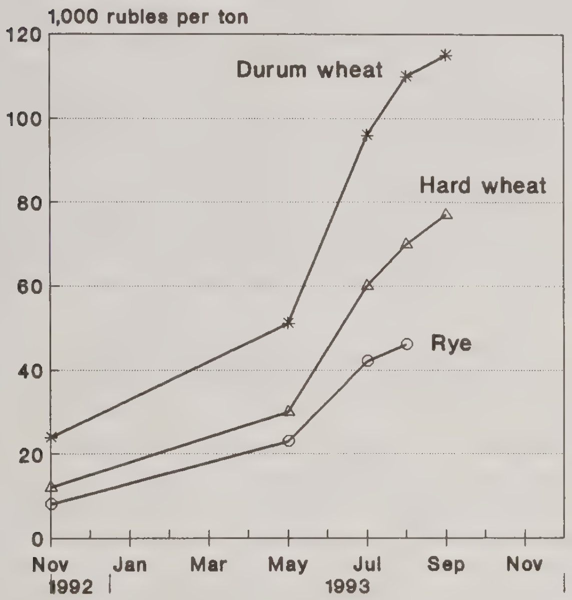
Table 32—State procurement prices for grains, oilseeds, and sugarbeets, Russian Federation

Commodity	November 1992		May 1993		July 1993		August 1993		September 1993	
	1,000 R/ton	*$/ton*	*1,000 R/ton*	*$/ton*	*1,000 R/ton*	*$/ton*	*1,000 R/ton*	*$/ton*	*1,000 R/ton*	*$/ton*
Hard wheat (III)	12	$28	30	$32	60	$59	70	$71	77	$72
Durum wheat (I)	24	$56	51	$55	96	$94	110	$112	115	$108
Durum wheat (II)	20	$47	43	$46	80	$78	92	$93	97	$91
Corn	na	na	28	$30	na	na	62	$63	65	$61
Barley	8	$19	20	$22	47	$46	47	$48	52	$49
Rye	8	$19	23	$25	42	$41	46	$47	na	na
Oats	8	$19	20	$22	51	$50	51	$52	56	$52
Millet	11	$26	23	$25	48	$47	53	$54	56	$52
Rice	19	$45	53	$57	na	na	85	$86	90	$84
Buckwheat	22	$52	64	$69	113	$110	124	$126	135	$126
Sunflowerseed	14	$33	43	$46	90	$88	90	$91	100	$94
Soybeans	28	$66	59	$64	124	$121	124	$126	136	$127
Rapeseed	na	na	38	$41	78	$76	86	$87	95	$89
Sugarbeets	2.5	$6	7	$8	na	na	19	$19	20	$19
Exchange rate: (rubles/$)		426.38		928.25		1024.55		985.84		1068.64

na = Not available.
Source: *Krest'yanskie vedomosti.*

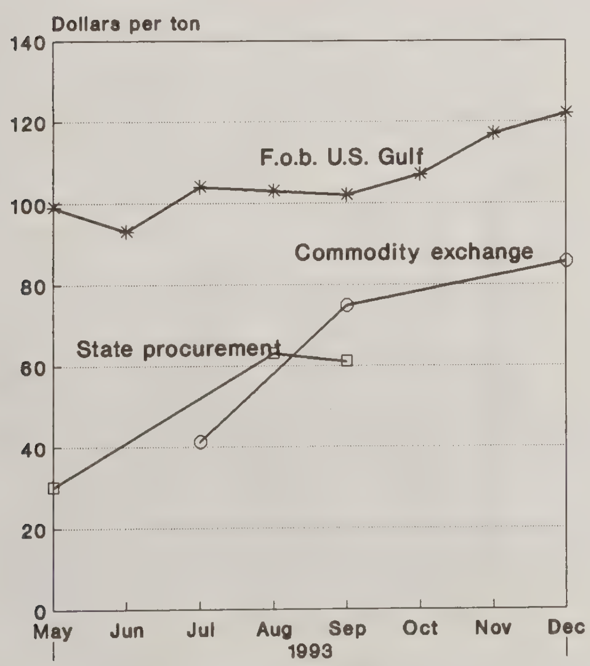
In the beginning of the 1993 harvest season, grain yields in all three major grain producing countries (**Russian, Ukraine, and Kazakhstan**) were reported above 1992 levels, despite the lower application rate of mineral fertilizers. Yields in 1992 were record- and near-record high for Kazakhstan and Russia, respectively. In late-September and early-October of 1993, grain yields began to decline below 1992 levels, as heavy rains and early snow in Russia and Kazakhstan disrupted harvesting. In **Ukraine**, however, due to favorable weather, 1993 yields remained substantially above a year earlier, despite a reported 50-percent drop in mineral fertilizer application.

Figure 12
State Procurement Prices for Grains, Russian Federation



Procurement prices in nominal terms.
Source: Krest'yanskie vedomosti.

Figure 13
Corn Prices, Russian Federation

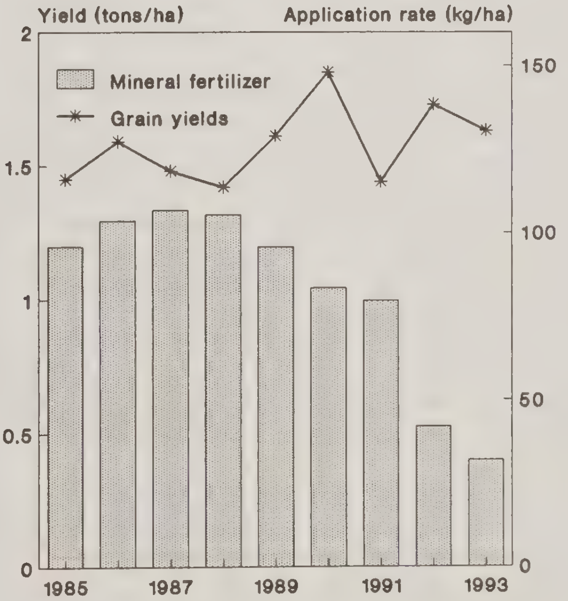


Sources: Krest'yanskie vedomosti; USDA.

If the use of fertilizers continues to fall at the same rate of recent years and soil fertility becomes depleted, grain yields may drop in the near future. In 1992 and 1993, farmers chose to reduce input use because of large price disparities. Input prices were considerably higher than grain output prices. However, as market forces develop and the price disparity between fertilizers and grains lessens, input use should increase.

In comparing grain yields in selected FSU countries with other countries, certain crop yields have the potential to increase in the long term, provided farmers have the market incentives and resources to efficiently utilize inputs and minimize losses. (However, other important factors such as climatic conditions, soil types, and so forth also need to be taken into consideration when making these comparisons.) FSU-average wheat yields are about 30 percent below U.S. wheat yields, barley yields are about 50 percent lower, and corn yields are 60 percent less. Corn yields, in particular, could increase in the long term because of the large disparity between FSU and U.S. yields, and because of increasing FSU imports of higher-yielding hybrid corn seed. In 1993, corn yields rose about 25 percent following a poor 1992 performance. In the near term, however, yields in the FSU will likely remain below yields in other countries, largely due to the low utilization of costly inputs.

Figure 14
Fertilizer Application and Grain Yields, Russian Federation



Mineral fertilizers for all crops.
Source: Goskomstat Rossii.

State Remains Dominant Force in Grain Marketing in FSU Countries

The State, on the federal and/or regional level, will likely remain in control of the majority (60-90 percent) of the grain marketed within most FSU countries in 1994. As a share of total grain output, State grain procurements were about 30 percent in **Russia, Ukraine,** and **Kazakhstan** in 1993, down from 35-50 percent in the late 1980's, but still quite large (figure 15). Although nearly a quarter of marketed grain in **Russia** is traded through non-State channels--commodity exchanges, barter (inter-enterprise, inter-oblast, interrepublic), payment-in-kind arrangements, and through private cash transactions--most FSU countries continue to view grain as a politically and economically strategic commodity that should remain largely in the government's hands. Control of grain supplies continues to represent increased food self-sufficiency and security, a means of regulating bread prices, and a way to ensure earnings from the export of grain are shared with the State.

Although the **Baltic States** have done much to liberalize their grain markets, most other FSU countries have maintained the State's primary presence in the market. In the **Russian Federation,** although a December 1993 law was issued to diminish the State's role in the grain market, conservatives among federal and regional authorities are expected to continue to limit non-State transactions, maintaining the government's predominant role in the market. In many countries, State and collective farms themselves have lobbied for the State to guarantee grain prices and purchases, rather than face the unknowns of the emerging market.

State Grain Procurements in 1993 Rise in Most Countries

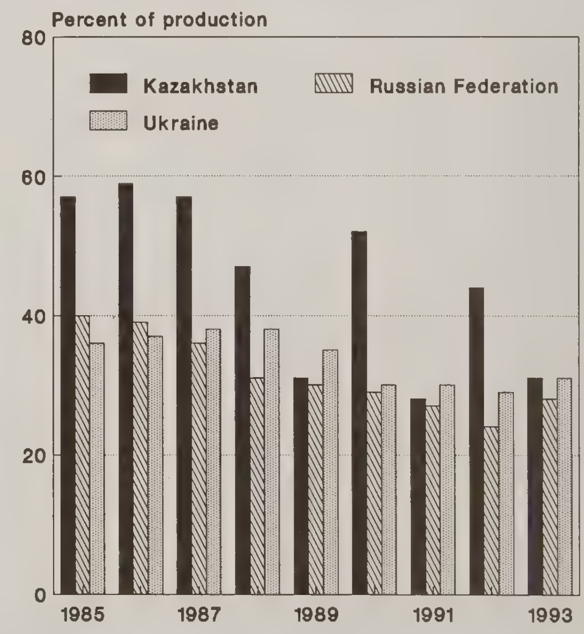
Despite a fall in overall FSU grain output last year, total 1993 State grain procurements in the FSU countries were nearly the same as the 55 million tons procured in 1992, and remained at 30 percent of total production. In **Ukraine**, grain procurements increased to 31 percent of output, and in Russia, where the federal grain fund purchased 11.5 million tons and regional funds about 16 million, total procurements rose to 28 percent of production (table 33). In addition to FSU procurements, in early-spring 1994 over 10 million tons of 1993 grain remained on farm or in rented, State-owned storage facilities, ready for sale once the FSU governments allocate funding. A small number of newly established, private trading organizations have contracted for some grain, but the lack of access to capital financing and grain-handling and storage facilities prevents them from substantially increasing their activities, even though their willingness to pay cash up front, unlike State bodies, finds them many would-be sellers.

In order to encourage grain sales to State buyers last year, the FSU countries sharply increased State-set procurement prices, continued to offer substantial subsidies and other privileges to farms that sold to the State, and in many cases (e.g., **Ukraine**), threatened farms with penalties for selling outside State channels or without State approval. In **Russia**, wheat (hard, class III) procurement prices for 1993 were set at 30,000 rubles ($32) per ton in May, at 60,000 rubles ($59) in July, and at 77,000 rubles ($72) in September (as a result of indexing). Not only had the Russian Government agreed to the farm lobby's demand for near-world-market prices, well above the State's financial resources, but it set prices at 10,000-20,000 rubles above internal commodity exchange levels at the time. Given substantially higher prices by the State for sales, the volume of grain transactions on commodity exchanges rapidly fell. Promises by the State, however, were short-lived.

As the State procurement bodies of the FSU countries fell increasingly behind on payments to farms, grain procurements slowed, and farms instead placed more grain in storage. Even though the **Russian** Government had discontinued the indexing of grain procurement prices in October 1993, by the end of the year it had run up about 600 billion rubles (over $400 million) in arrears to grain producers. With few alternative channels for their grain other than barter, farms are likely to resume sales as the Russian Government catches up on its arrears. As of early-May 1994, the Russian Government had paid off much of the outstanding procurement debt. It was not yet clear if the spring-1994 payments were adjusted for inflation.

If the **Russian** Government were to adopt the inflationary policies being discussed in early- 1994, such as pumping large subsidies and credits into the farm sector, financial incentives to sell grain to the State could fall this year. A rapidly depreciating ruble would likely increase farms' unwillingness to sell to the State, preferring instead to hold physical commodities for barter transactions. A contraction of State procurements in 1994, accompanied by an increase in inefficient barter transactions, could cause disruptions in marketing channels and downstream operations. Moreover, the weakening

Figure 15
State Grain Procurements, Russia, Ukraine, Kazakhstan



Source: Statkom SNG.

Table 33--State procurement of grain, by type, FSU and major countries

	Wheat	Rye	Corn	Barley	Oats	Millet	Buckwheat	Rice	Pulses	Other	Total grain
	Million tons										
FSU											
1986	43.8	6.1	3.3	14.1	4.5	1.2	0.4	1.9	0.8	2.7	78.8
1987	35.2	7.2	4.0	15.3	2.7	2.1	0.6	1.9	1.5	2.8	73.3
1988	35.0	6.3	4.3	8.0	1.8	1.6	0.4	2.1	1.0	1.0	61.5
1989	34.1	6.4	3.2	6.6	1.6	2.2	0.5	1.7	1.1	1.7	59.1
1990	40.8	9.3	1.7	8.9	1.6	1.9	0.5	1.6	1.2	0.5	68.0
1991 [1]	24.1	na	na	na	na	na	na	na	na	na	42.2
1992 [1]	29.7	na	na	na	na	na	na	na	na	na	54.5
1993 [1]	30.9	na	na	na	na	na	na	na	na	na	53.3
Russian Federation											
1986	22.6	4.5	0.5	7.3	4.0	0.7	0.2	0.9	0.6	0.8	42.1
1987	15.1	5.1	1.4	7.0	2.1	1.3	0.3	0.8	0.6	1.4	35.1
1988	16.3	4.5	1.2	3.1	1.4	0.8	0.2	0.9	0.4	0.4	29.2
1989	17.4	4.4	1.2	3.1	1.4	1.8	0.3	0.7	0.5	0.4	31.2
1990	18.4	7.2	0.5	3.8	1.2	1.1	0.3	0.6	0.6	0.3	34.0
1991	13.1	4.2	0.6	3.0	1.1	0.5	0.2	0.5	0.2	0.2	23.6
1992	12.6	5.8	0.5	3.7	1.4	0.8	0.3	0.4	0.3	0.3	26.1
1993	15	4.5	na	na	na	na	na	na	na	na	27.4
Ukraine											
1986	8.2	0.2	1.7	2.4	0.2	0.3	1.0	0.2	0.2	1.7	15.2
1987	8.2	0.4	1.9	4.4	0.4	0.4	0.2	0.1	0.8	1.3	18.1
1988	10.5	0.3	2.2	2.3	0.3	0.4	0.1	0.1	0.6	0.5	17.3
1989	11.8	0.4	1.3	1.9	0.2	0.2	0.2	0.1	0.6	1.0	17.7
1990	11.5	0.4	0.7	1.6	0.2	0.2	0.2	0.1	0.6	--	15.4
1991	8.0	0.3	0.8	1.4	0.1	0.2	0.1	0.1	0.2	0.3	11.5
1992	6.9	0.3	0.3	2.2	0.2	0.1	0.1	0.1	0.6	0.2	11.1
1993	10.0	na	na	na	na	na	na	na	na	na	14.2
Kazakhstan											
1986	11.7	0.2	0.4	3.2	0.2	0.3	--	0.5	--	--	16.7
1987	10.5	0.1	0.3	2.6	0.1	0.4	--	0.5	--	--	14.6
1988	6.5	0.3	0.3	1.6	--	0.4	0.1	0.5	--	--	9.8
1989	3.7	0.4	0.1	1.0	--	0.2	--	0.5	--	--	5.9
1990	9.8	0.5	0.2	2.9	0.1	0.6	0.1	0.5	--	--	14.8
1991	2.0	0.2	0.2	0.3	--	0.1	--	0.4	--	--	3.4
1992	9.2	0.2	0.2	2.7	0.1	0.3	0.1	0.3	--	--	13.1
1993	4.2	na	0.2	na	na	na	na	0.2	na	na	6.7
Other FSU countries											
1986	1.3	1.2	0.7	1.2	0.1	--	--	0.3	--	--	4.8
1987	1.4	1.6	0.4	1.3	0.1	--	0.1	0.5	0.1	--	5.5
1988	1.6	1.2	0.6	1.0	0.1	--	--	0.6	--	--	5.2
1989	1.2	1.2	0.6	0.6	--	--	--	0.4	--	--	4.2
1990	1.1	1.2	0.3	0.6	0.1	--	--	0.4	--	--	3.7
1991 [1]	1.0	na	na	na	na	na	na	na	na	na	3.7
1992 [1]	1.0	na	na	na	na	na	na	na	na	na	4.2
1993 [1]	1.3	na	na	na	na	na	na	na	na	na	5

na = Not available.
-- = negligible or none.
[1] ERS estimates.
Source: Statkom SNG.

of distribution channels could cause localized food-shortage problems.

Many **Russian** grain-processing enterprises have become less dependent on the State for grain supplies during the last 3 years, having developed some direct links with certain producers and become more financially independent. However, the State, on both the federal and regional levels, continues to provide grain, through procurements and imports, to a large share of grain processors. Thus, a potential further reduction in State grain supplies, caused by decreased procurements, would likely heighten concerns by the government. As evident from table 34, Russian Government agencies, while providing much less than the annual 55 million tons that were typical in the late-1980's (excluding stock changes), are estimated to have had about 37 million tons to supply to federal and regional enterprises in 1993/94.

Russian Reformers Attempt To Liberalize Grain Market

In late 1993, the then reformist **Russian** Government, led by Ministers Gaidar and Fedorov, abolished procurement price indexing, price subsidies to grain millers, and retail price controls for bread. In addition, in December 1993, a Presidential decree that called for significant liberalization of the grain market was introduced. Although the final decree was much weaker than its original draft, it still represented a breakthrough for the reformers who regained power following the dispersal of the Russian Parliament in October 1993. According to the decree, in 1994: 1) the federal government was to only procure grain for its strategic reserves, the military, selected nonagricultural regions in the north, Moscow, and St. Petersburg, with all other regions responsible for meeting their own needs via procurements or other means, 2) all State (federal and regional) purchases were to be made at market, not State-set, prices, 3) regions were to be prohibited from obstructing the free trade of grain, and 4) State procurement, processing, and baking enterprises were to be privatized over the next 3 years.

Table 34--State grain procurements, imports, and total State supplies, Russia

Year	Procurements (A)	Imports [1] (B)	Total State supplies (A+B)
	Million tons		
1987/88	35.1	21.2	56.3
1988/89	29.2	26.1	55.3
1989/90	31.2	24.1	55.3
1990/91	34.0	17.6	51.6
1991/92	23.6	22.8	46.4
1992/93	26.1	21.2	47.3
1993/94	27.4	9.5	36.9

[1] Imports are USDA July/June estimates.
Sources: Goskomstat Rossii; USDA.

With the late-1993 election of a new **Russian** Parliament, which includes a strong conservative agrarian faction, and the resignation of several key reformers from the Russian Government in early 1994, the implementation of the December grain marketing decree is not likely to be fully implemented during the coming year. As of April 1994, the government and parliament were still debating whether there would be guaranteed-minimum State prices and purchases, and to what degree grain producers would be subsidized for sales to federal procurement bodies, let alone regional ones. There was also no indication that regional officials (oblast or republic level) were planning to loosen their control over grain marketing, especially as the federal government was establishing its own grain export quotas. Furthermore, if privatization of State enterprises was to begin, the new semi-privatized firms would likely remain near monopolies in their regions.

It should be recalled that the decentralization of the **Russian** State grain procurement system in 1993 did not result in major changes, but did mark a break with the past and began a process of decontrol. In 1992, there was a single federal system that set a 29-million-ton procurement target. In 1993 the system was divided into a federal grain fund (with a target of 12 million tons) and regional funds (with a combined target of about 20-million tons). However, the vast majority of the 1993 financing for both federal and regional procurement funds came from the federal government in the form of Central Bank credits. To what degree the federal government will continue to finance regional grain procurements in 1994 is unclear. While reformers in Russia move to downsize State control of marketing, **Ukraine**, reflecting its emphasis on continued State control, set its 1994 grain procurement target at 14 million tons, largely unchanged from 1993.

FSU Grain Use Falls as Livestock Sector Continues To Contract

Continued animal-inventory drawdowns in nearly every FSU country will likely cause further declines in feed use of grain in 1994/95 (July/June), offsetting possible increases in food use of grain caused by rising per capita consumption of bread (tables 35-36). Slight declines in overall FSU industrial use, seed use, and waste of grain might also occur in 1994/95. Although total grain use will likely fall in 1994/95, stocks may have to be tapped to make up for lower projected grain production and imports.

The drawdown of cattle and hog inventories by 5-10 percent in the FSU States during 1993, following similar declines in 1992, continued to reduce grain for feed use in 1993/94. In the **Russian Federation**, USDA estimates that feed use of grain is down about 10 percent in 1993/94 from 1992/93, the third consecutive year of reduced feed use from its estimated peak of about 78 million tons in 1990/91.

As livestock producers' terms of trade sharply deteriorated following price liberalization and subsidy reductions in 1992, farms began reducing herds, and thus feed use, to lower production costs. **Russian** statistics show usage of concen-

trated feeds in 1992 fell 15 percent from the year before (table 37). (Livestock feeds include concentrates, succulents, coarse feeds, and pasture feeding. Concentrates include both prepared (mixed) and unprepared high- protein feeds, such as grain, oilseeds, and food processing byproducts. Grain generally accounts for as much as 80 percent of mixed feeds.)

The most visible response of farms was to dramatically reduce purchases of costly mixed feeds. The reduced demand for mixed feed is evident from output data, with production of mixed feeds (the bulk of which is grain) in Russia by State enterprises reportedly down 27 percent in 1992, and another 12 percent in 1993 (table 38). As farms cut back on the use of balanced mixed feeds, they have increased the share of unprocessed grain in feed rations, which may have contributed to reduced feed efficiency. One outcome of the change in producers' terms of trade may be a shift towards increased use of forage crops in the future.

USDA estimates usage of grain for feed in **Ukraine** to be largely unchanged in 1993/94, but down substantially from its peak use of an estimated 28 million tons in 1990/91. According to Ukrainian data, use of concentrated feeds fell 6 percent in 1991 and another 14 percent in 1992 (table 39).

Food use of grain in the FSU continues to reflect two diverging trends: 1) rising per capita human consumption of grain products, and 2) a simultaneous decline in the waste of bread and the feeding of bread to animals. The two trends are largely cancelling out one another, resulting in little change in USDA's total estimate of FSU food use of grain at about 43 million tons in 1993/94.

Estimating food use in the FSU countries has become particularly complicated in recent years, given the continued unavailability of reliable official-use data, the increased difficulty associated with estimating non-State use, and the fact that neither official data on flour production or per capita consumption of grain products can be taken at face value when estimating total food use. In both cases, the data overstate actual human food use of grain, because a significant share of flour produced, and the per capita consumption figure, include grain products that are fed to animals or wasted by consumers. Furthermore, consumption data are said to suffer more than usual from poor sampling techniques, and flour output data appear to undercount production by non-State enterprises.

In **Russia**, for example, although reported per capita consumption of grain products in 1993 increased 10 percent from 1991 (the result of a shift by consumers away from more expensive livestock products), reported output of flour and bread dropped nearly 20 percent during the same period (figure 16). Even if the flour data do undercount output and unofficial flour imports are taken into account, the discrepancy is still large, and can be interpreted in several ways, including an indication that waste and misuse of bread was very high.

USDA's estimate of total FSU industrial use of grain in 1993/94 remains largely unchanged at about 4.5 million tons.

Table 35--Annual per capita consumption of selected food products, FSU countries

Republic	Grain products [1]						Potatoes						Fruits, berries, and grapes [2]					
	1980	1985	1990	1991	1992	1993 [3]	1980	1985	1990	1991	1992	1993 [3]	1980	1985	1990	1991	1992	1993 [3]
	Kilograms																	
Russian Fed.	126	119	119	120	125	132	118	109	106	112	112	123	30	40	35	35	33	39
Ukraine	146	138	141	143	179	179	133	139	131	116	133	132	40	50	47	37	38	38
Belarus	140	131	126	126	148	150	200	185	170	165	169	170	30	60	38	35	37	37
Moldova	177	173	171	175	213	200	75	79	69	69	67	67	44	64	79	79	63	60
Kazakhstan	147	146	146	147	191	190	86	89	85	75	86	85	23	22	23	17	14	15
Uzbekistan	177	177	170	167	205	205	29	26	29	25	27	23	39	31	23	24	43	45
Kyrgyzstan	149	144	139	134	169	170	56	65	69	62	68	70	30	25	16	18	23	24
Tajikistan	177	178	167	131	198	198	35	35	35	31	32	17	44	38	30	27	21	20
Turkmenistan	165	168	165	167	213	210	23	31	21	19	23	24	18	18	28	36	31	32
Armenia	140	134	129	130	143	143	55	65	58	77	64	61	35	47	41	62	61	58
Azerbaijan	160	158	151	134	188	190	25	28	27	22	26	na	31	39	33	26	na	na
Georgia	190	190	183	146	na	na	46	49	41	33 [3]	na	na	39	64	49	39 [3]	na	na
Lithuania	111	107	111	138	120	120	150	134	146	128	95	120	40	52	39	51	20	35
Latvia	107	104	107	105	110	110	128	122	125	115	116	na	37	43	33	37	34	na
Estonia	96	92	77	63	60	60	122	113	103	105	125	na	38	44	36	27	na	na
Total FSU	138	133	133	na	na	na	109	104	100	na	na	na	33	41	36	na	na	na

na = Not available.
[1] Including pulses. [2] Without processing for wine. [3] Estimates.
Sources: Statkom SNG.

Table 36--Supply and use of grain, FSU and major countries [1]

Year beginning July 1		Production [2]	Trade [3] Imports	Exports	Availability	Utilization F.S.I. [4]	Feed & residual	Total	Stock change
FSU					1,000 tons				
Total grains [5]	1991/92	152,412	40,940	1,065	192,287	76,858	130,141	206,999	(14,712)
	1992/93	184,957	34,995	8,600	211,352	72,887	124,576	197,463	13,889
	1993/94 [6]	176,584	20,455	7,570	189,469	77,385	115,157	192,542	(3,073)
	1994/95 [7]	168,454	18,380	8,200	178,634	77,257	105,864	183,121	(4,487)
Wheat	1991/92	71,981	22,190	640	93,531	49,108	52,210	101,318	(7,787)
	1992/93	89,719	23,685	6,600	106,804	49,581	48,478	98,059	8,745
	1993/94 [6]	84,159	14,015	6,600	91,574	50,371	44,230	94,601	(3,027)
	1994/95 [7]	76,270	13,540	6,700	83,110	49,410	39,500	88,910	(5,800)
Coarse grains [8]	1991/92	80,431	18,750	425	98,756	27,750	77,931	105,681	(6,925)
	1992/93	95,238	11,310	2,000	104,548	23,306	76,098	99,404	5,144
	1993/94 [6]	92,425	6,440	970	97,895	27,014	70,927	97,941	(46)
	1994/95 [7]	92,184	4,840	1,500	95,524	27,847	66,364	94,211	1,313
Russian Federation									
Total grains	1991/92	85,079	22,758	330	107,507	40,779	76,820	117,599	(10,092)
	1992/93	101,957	21,100	1,500	121,557	37,789	74,700	112,489	9,068
	1993/94 [6]	93,369	9,400	1,000	101,769	41,069	65,400	106,469	(4,700)
	1994/95 [7]	86,800	8,100	1,000	93,900	40,750	57,900	98,650	(4,750)
Ukraine									
Total grains	1991/92	36,213	2,400	550	38,063	13,833	27,689	41,522	(3,459)
	1992/93	35,093	3,000	100	37,993	13,639	24,353	37,992	1
	1993/94 [6]	41,480	630	900	41,210	14,363	24,400	38,763	2,447
	1994/95 [7]	37,730	350	700	37,380	13,957	23,480	37,437	(57)
Kazakhstan									
Total grains	1991/92	11,250	2,460	75	13,635	6,390	7,717	14,107	(472)
	1992/93	28,863	35	7,000	21,898	6,537	10,447	16,984	4,914
	1993/94 [6]	20,785	0	5,600	15,185	6,841	10,380	17,221	(2,036)
	1994/95 [7]	22,900	0	6,500	16,400	7,175	9,525	16,700	(300)
Belarus									
Total grains	1991/92	5,996	1,750	50	7,696	2,397	5,344	7,741	(45)
	1992/93	7,027	1,625	0	8,652	2,863	5,728	8,591	61
	1993/94 [6]	7,300	1,150	50	8,400	2,585	5,515	8,100	300
	1994/95 [7]	7,210	1,150	0	8,360	2,445	5,415	7,860	500
Uzbekistan									
Total grains	1991/92	1,373	4,500	0	5,873	4,252	1,621	5,873	0
	1992/93	1,745	3,775	0	5,520	4,014	1,556	5,570	(50)
	1993/94 [6]	1,682	3,900	0	5,582	4,156	1,426	5,582	0
	1994/95 [7]	1,942	3,950	0	5,892	4,286	1,556	5,842	50
Other FSU (10)									
Total grains	1991/92	12,501	7,072	60	19,513	9,207	10,950	20,157	(644)
	1992/93	10,272	5,460	0	15,732	8,045	7,792	15,837	(105)
	1993/94 [6]	11,968	5,375	20	17,323	8,371	8,036	16,407	916
	1994/95 [7]	11,872	4,830	0	16,702	8,644	7,988	16,632	70

[1] FSU includes 15 countries. [2] Production is in cleanweight.
[3] Includes intra-FSU and extra-FSU trade. [4] F.S.I. = food, seed, and industrial use.
[5] Wheat and coarse grain. [6] Preliminary.
[7] Projected. [8] Includes barley, corn, millet, oats, and rye.
Source: USDA, estimates as of May 1994.

Table 37--Total use of animal feeds, Russian Federation

	Total feed use, in standard feed units, all farms [1]	Of which, concentrated feeds, all farms [2]	Total feed use per standard animal, (in cow equivalent), all farms
	-----Million tons----		Centner/animal
1980	192.4	72.0	24.9
1985	211.5	74.4	26.6
1986	216.9	76.6	27.1
1987	217.4	79.4	27.2
1988	216.8	81.8	27.2
1989	221.1	83.7	28.1
1990	225.8	85.9	29.0
1991	220.9	83.9	29.1
1992	199.2	71.1	27.9

[1] Includes concentrates, succulents, coarse feeds, and pasture.
[2] Includes grain, millfeeds, oilmeal, fish and animal meal, grass meal, feed yeasts, and milk, in the form of mixed feeds, premixes and raw fed.
Source: Goskomstat Rossii.

Table 39--Total use of animal feeds, Ukraine

	Total feed use, in standard feed units, all farms [1]	Of which, concentrated feeds, all farms [2]	Total feed use per standard animal, (in cow equivalent), all farms
	----Million tons----		Centner/animal
1980	88.7	31.1	27.5
1985	99.0	31.1	29.8
1986	98.5	31.2	29.7
1987	96.8	31.9	29.7
1988	101.6	33.5	31.6
1989	101.4	33.7	31.5
1990	103.6	35.5	32.5
1991	99.9	33.3	32.3
1992	89.6	28.5	30.6

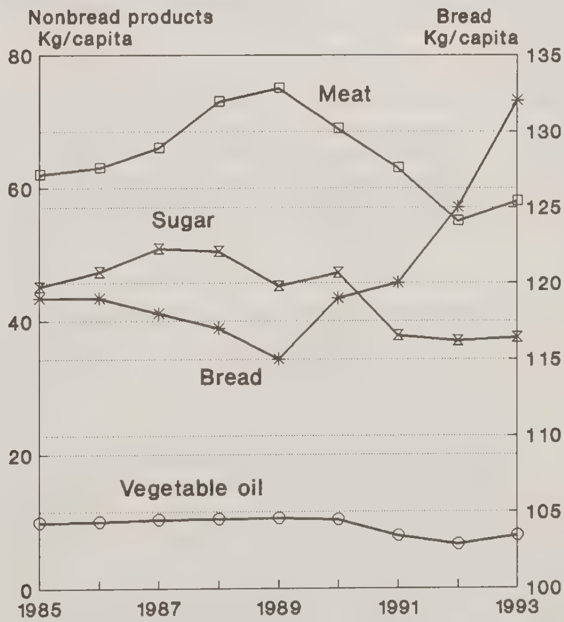
[1] Includes concentrates, succulents, coarse feeds, and pasture.
[2] Includes grain, millfeeds, oilmeal, fish and animal meal, grass meal, feed yeasts, and milk, in the form of mixed feeds, premixes and raw fed.
Source: Minstat Ukrainy.

Table 38--Output of food and feed products from grain, Russian Federation [1]

Year	Flour	Pasta products	Bread & rolls	Groats	Mixed feeds
			Million tons		
1980	23.2	0.90	19.90	na	32.5
1985	22.5	0.95	19.10	na	37.9
1986	21.1	0.96	19.10	2.80	na
1987	20.8	0.99	18.00	2.76	na
1988	20.1	1.00	17.70	2.84	na
1989	19.9	1.01	17.60	2.88	na
1990	20.7	1.04	18.20	2.85	41.0
1991	20.5	1.12	18.80	2.70	37.4
1992	19.9	1.10	16.90	1.90	27.4
1993	17.0	0.9	15.0	1.75	24.0

na = Not available. 1993 is preliminary.
[1] Output from all enterprises.
Source: Goskomstat Rossii.

Figure 16
Per Capita Consumption of Foods, Russian Federation



1993 preliminary.
Source: Goskomstat Rossii.

Although in some FSU countries, where relative prices have made it cheaper to import alcohol products rather than produce them domestically, industrial use of grain has decreased. In **Russia**, while output of vodka (made primarily from grain) rose nearly 10 percent in 1993, beer and starch production declined (table 40). Russian vodka production is likely to fall this year, despite the possible imposition of import tariffs on vodka that are being called for to protect domestic producers.

Overall seed use of grain in the FSU in 1993/94 is estimated by USDA to be down slightly at 24 million tons, the result of decreased area seeded, more careful seeding, and reduced seeding rates in response to lower use of fertilizers and pesticides. Although total-FSU winter grain area seeded in 1993 for 1994 harvest was down about 4 million hectares (mainly rye area), spring-1994 grain seeding is expected to offset much of the area decline.

USDA estimates total FSU grain waste/losses at about 13.5 million tons in 1993/94, or 8 percent of total output. Improved handling of grain by producers and downstream enterprises is estimated to have offset increased losses on farms due to inadequate storage facilities.

USDA generally estimates grain waste/losses in most FSU countries at 5-10 percent of production, based on such factors as weather conditions during harvest, the volume of grain kept on farms (rather than in State procurement facilities), the availability of drying equipment and other handling machinery, and the relative value of grain to the producer. (USDA's waste category accounts for grain waste/losses from the point after harvesting and cleaning up to the point of processing. Losses during harvesting and cleaning, including grain dockage, which vary from 4 to 10 percent in the main producing countries, are captured when bunkerweight is converted to cleanweight.)

Table 40--Industrial products from grain, Russian Federation

Year	Vodka	Beer	Starch
	---*Million decaliters*---		*1,000 tons*
1980	208	331	130
1985	161	350	157
1988	91	288	192
1989	117	316	193
1990	138	336	179
1991	154	333	163
1992	149	278	154
1993	162	261	95

na = Not available. 1993 is preliminary.
Source: Goskomstat Rossii.

USDA estimates that after a sharp stock drawdown in 1991/92, FSU stocks were replenished in 1992/93, and were reduced somewhat in 1993/94. In **Russia**, the share of total stocks owned by producers has increased in the last few years, as farms have held on to more grain in anticipation of rising grain prices or as a hedge against inflation.

FSU Grain Imports in 1994/95 Projected To Be Lowest in Over 15 Years

FSU grain imports in 1994/95 (July/June) are forecast to continue to decrease for many of the same reasons 1993/94 imports declined: projection of a slightly reduced 1994 grain crop after 2 years of stable production and procurement in most FSU countries, and more efficient use and less waste, particularly in feed utilization. In addition, hard currency and other financial constraints in most of the FSU countries, particularly in **Russia**, which assumed the FSU's estimated $80-$90-billion external debt, have been a major factor that has led to significantly lower imports. FSU grain-import demand has also been dampened by decreased consumer demand for livestock products. Last, several FSU countries have moved to discourage imports by eliminating import subsidies, and proposing import barriers.

Given these recent trends, along with the expected results of economic restructuring in the medium-to-long term (5-15 years), FSU grain imports are not expected to return to the high levels purchased during the 1980's and early 1990's. Additionally, it is likely that the restructuring will also affect the FSU's preference for wheat versus coarse grain imports, which in turn could alter grain exporters' market shares.

USDA Adds Intra-FSU Trade to Its Estimates

In May 1994, USDA projected FSU 1994/95 grain imports at 18.4 million metric tons, down slightly from estimated 1993/94 imports of 20.5 million tons, the lowest in over 15 years. FSU imports of wheat in 1994/95 are not expected to increase significantly from the estimated 14.0 million tons imported in 1993/94, and are projected at 13.5 million tons. Estimated 1993/94 wheat imports fell by one-third from 1992/93. FSU coarse grain imports in 1994/95, forecast at just under 5 million tons, are down 25 percent from the estimated 6.4 million for 1993/94, which were one-third lower than 1992/93. These trade data include intra-FSU trade, which historically is estimated at 20-30 percent of the total (figure 17). However, in 1994/95, intra-FSU trade could account for as much as 45 percent of total trade.

In July 1993, USDA published the first FSU grain-supply-and-use series by country, incorporating trade between the FSU countries, beginning with 1987/88. All current USDA estimates of FSU grain imports and exports include both extra- and intra-FSU trade data, and are therefore not fully comparable to previously published pre-1987/88 USDA estimates.

Estimating FSU intra-trade is made difficult by a lack of comprehensive and reliable data. Since the dissolution of the USSR at the end of 1991, partial data have been made available on Soviet-era interrepublic trade. While these data may be of limited accuracy, they do provide some indication of

Soviet-period trade flows between the former republics, as well as a basis for post-Soviet regional trade.

Although it is likely that nearly all of the republics exported some grain to other FSU countries during the Soviet period, only **Kazakhstan** and, to a lesser degree, **Ukraine**, were net exporters, depending on annual production levels. While very little intra-FSU trade took place in 1991/92 due to below-average production (particularly in **Kazakhstan**, which produced less than half of its normal output), intra-FSU trade as a share of total trade in the last 2 marketing years has shown some increase as extra-FSU imports have declined.

Extra-FSU Grain Import Mix: Wheat vs. Coarse Grains

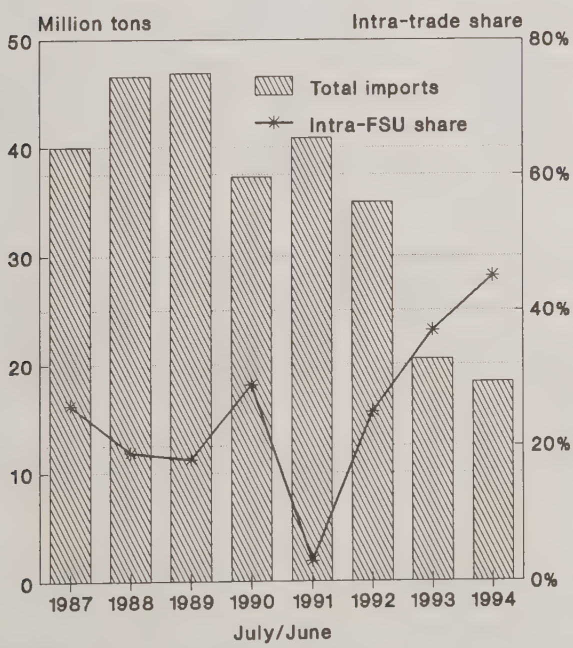
The long-term economic restructuring taking place in the FSU, as these countries move from centrally planned systems to market economies, is expected to have a significant effect on extra-FSU grain-import demand. Not only are overall grain imports expected to continue to be lower, relative to the large purchases made in the 1980's and early 1990's, but the composition of imports could change, which might affect import sources. Because this analysis examines historical trends in FSU grain trade, all data and references to Soviet or FSU grain imports are understood to include only extra-FSU imports; that is, grain imports from countries other than those within the FSU.

In 1972/73, the Soviet Union sharply increased grain imports, at first purchasing larger quantities of coarse grains (primarily corn) than wheat from the world market. However, since 1982/83, the FSU has predominately imported wheat, with the exception of 1988/89 and 1989/90 (figure 18). Coarse grain production exceeded that of wheat during the 1980's, which in part explains higher wheat imports. The Soviet Union became a consistent net importer of wheat in the early 1970's, despite being one of the world's largest wheat producers, and previously a net exporter (primarily to Soviet Bloc countries). The sharp increase in total grain imports during the 1970's and 1980's was largely the result of State-directed expansion in animal inventories, particularly of hogs and poultry, in order to increase meat output and boost consumption.

The grain content of Soviet mixed feed was relatively high and unbalanced, resulting in protein-deficient rations and lower-than-normal feeding efficiencies. In addition, the Soviet price structure resulted in the feeding of large quantities of unprocessed grain, and even bread, to livestock, further reducing feeding efficiencies. Instead of focusing on improving livestock productivity in order to increase output, livestock inventories were expanded. With larger herds, particularly of animals that are more dependent on mixed feed (poultry and hogs), more grain was required for feed use. Domestically produced grain, particularly wheat, was largely utilized in this manner. As a result, imports of milling-quality wheat had to be increased.

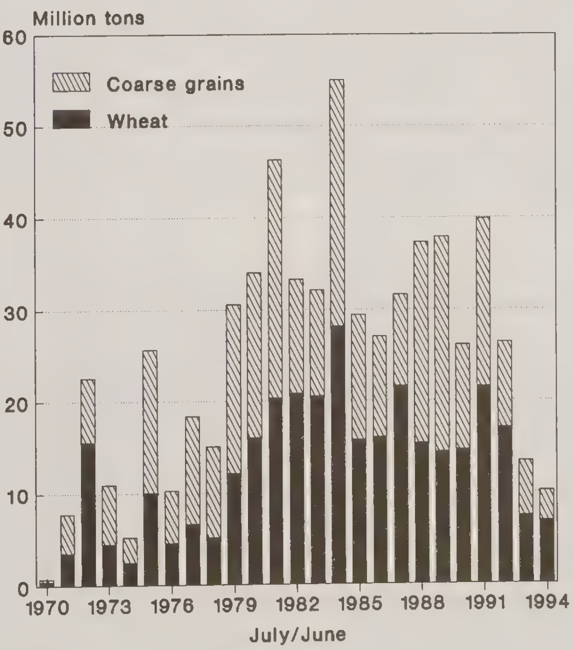
With the breakup of the Soviet Union and efforts by most of the FSU countries to initiate market reforms, noticeable changes in grain-import demand have already taken place, largely due to the reduction in livestock herds, particularly hogs and poultry, that is resulting from decreased consumer demand. Increased farm prices for grain in most FSU countries (though still lower than world prices), and reduced producer subsidies have led to relatively more efficient use. These factors, along with reduced purchasing power and the

Figure 17
FSU Grain Trade and Share of Intra-Trade



Source: USDA.

Figure 18
Extra-FSU Grain Imports



Estimates, 1994/95 forecast.
Source: USDA.

removal of substantial import subsidies, largely explain lower grain imports.

However, the effect of certain reform measures on grain import mix, that is, demand for wheat versus coarse grains, is less evident. Based on the results of reform measures implemented so far (more efficient use, greater price differentiation for quality), it could initially be assumed that FSU coarse grain imports in the medium term would remain stable or potentially grow, as real income stabilizes and consumer demand for livestock products increases. At the same time, wheat imports would likely continue to decline as more of domestic production would be utilized for human consumption. Given that barley makes up around half of FSU coarse grain production, corn, which makes up less than 20 percent of output, is the primary FSU coarse grain import. Government officials in **Russia** have already indicated that State imports of wheat will continue to drop off in 1994, while purchases of corn (and possibly increased levels of protein meal) would likely be maintained to supply State-owned mixed feed mills.

In a market-based economy, feed rations are determined by the composition of animal inventories, relative nutrient values and requirements, proximity of feed supply to animals, and ease of substitution between competitively priced alternatives. In addition, the relative prices between different kinds of domestically produced grains, and the prices of those grains relative to world prices, also affect feed composition. Therefore, as the FSU countries move toward a market economy, these factors should play a larger role in feeding decisions.

An important component of feed-ingredient demand is the relative nutritional values of those ingredients. While corn is considered an excellent feed grain (particularly for hogs and poultry), because of its high nutritional content, examining relative nutrient values of corn, wheat, and barley indicates that the feed value of wheat and barley is roughly comparable to that of corn. For example, wheat has about 105 percent of the feed value of corn (on average for all species), while barley has around 95 percent of corn's feed value. Wheat and barley have a higher crude-protein content. However, it should be noted that barley's relatively high fiber content makes it less suitable for feeding poultry, particularly broilers, and young hogs.

In the United States, farmers feed large amounts of corn, estimated at 80 percent of total grain feed use, because of a large domestic corn supply and its lower price relative to other feed grains. Conversely, wheat, which makes up only 3-5 percent of estimated U.S. feed use, is considered a secondary feed because of its higher price and its use as a food grain. However, estimated U.S. feed-and-residual use of wheat has reached as high as 7-8 percent of total grain use in recent years, the result of the relative price and supply of wheat and competing grains, the beef cattle population, wheat quality, and location. U.S. feed demand for wheat, as measured by the wheat-to-corn price ratio, is relatively elastic, meaning that a decrease in the price ratio leads to a relatively larger feed use of wheat. For example, in 1990/91, the U.S. wheat-to-corn price ratio fell nearly 30 percent, primarily due to increased wheat production that lowered wheat prices, resulting in an almost 65 percent increase in feed use of wheat.

Because farmers are more likely to feed higher levels of easily obtained grains, higher levels of wheat feeding occur most frequently in corn-deficit regions. For example, wheat and barley output in the EU-12 makes up three-quarters of production. Correspondingly, the share of these grains in feed use is nearly 70 percent. Conversely, EU-12 corn production and feed use are around 20 percent of the total. However, it should be noted that the EU grain market is significantly protected by import barriers, thus making imported grain, including corn, more expensive to use. A similar mix of grain production and use currently exists in the FSU, where wheat and barley (along with rye) are the primary grains produced and used for feed. Growing conditions limit corn area, although the use of higher-yielding varieties more suitable to FSU growing conditions could result in slightly higher output than the average 10-13 million tons (less than 10 percent of total grain output) produced in recent years.

However, the current price structure facing farmers does not indicate that corn production will be greatly increased, or that farmers will likely increase feeding of corn. Analysis of **Russian** procurement prices in 1993 shows larger real increases for wheat and barley than for corn, indicating that farmers may try to increase 1994/95 output of those crops.

Theoretically, if wheat-to-corn and barley-to-corn price ratios fall below the feed value ratios, 105 and 95 percent respectively, it would generally make sense to feed wheat and barley instead of corn. Using **Russian** farm-gate (procurement) prices in 1993 of feed-quality wheat, barley, and corn, wheat-to-corn price ratios ranged from 93 to 106 percent, while barley-to-corn ratios were between 71 and 84 percent, indicating that it would likely be more economical to feed wheat or barley than corn. Moreover, if these ratios are calculated using the import price for corn, wheat-to-imported-corn price ratios ranged from 35-63 percent, and barley-to-imported-corn price ratios were 26-55 percent. This strongly suggests that Russian farmers should feed domestically-produced wheat and barley, rather than imported corn. However, this conclusion may not be valid if the prices paid by mixed feed mills for wheat, corn, and barley do not reflect these price relationships.

Also, given that internal Russian grain prices are around 50-60 percent of world prices, increased quantities of corn imports generally do not make economic sense, except in cases where the transportation costs of shipping domestically produced grain exceed the difference between world and internal prices. Further, available 1993/94 (July/June) price data show oil/grain terms of trade are deteriorating in the FSU, with a significant increase in the number of barrels of oil (from 5.6 to 7.9) required to import 1 ton of corn (figure 19).

However, there are several factors that could affect this price-feed-relationship analysis. First, expected shortrun continuation of State control, either federal or local, of the grain market will likely impede the determination of grain use for feed by market forces rather than government planners. Second, while wheat and barley can be fed in large amounts,

depending on the animal, these rations require certain nutritional supplements that may not be available (or widely used) in the FSU, thus reducing the feeding efficiencies of these grains.

Third, as restructuring of the FSU livestock sector continues, it is difficult to determine future feed grain demand based on the current composition and level of animal inventories, which have been sharply reduced (especially hogs and poultry) over the last 2-3 years. Fourth, if long-term economic restructuring is successful, and price-distorting subsidies and trade barriers are reduced, internal grain prices should theoretically move closer to world prices, which could alter the price ratios presented above. However, this realignment of prices is not likely to occur in many of the FSU countries in the near term. Last, and perhaps most important in the shortrun, is the constraining effect of reduced hard currency availability on import demand. In **Russia's** case, this would be in addition to substantial debt.

FSU Wheat Trade: Increased Competition for Declining Market Share

The outlook for FSU wheat imports indicates continued intense competition for market share, as overall demand is expected to remain low and intra-FSU trade makes up an increasing share of total trade. Increased world prices, expected in the next few years as export subsidies are phased out under the latest GATT agreement, could possibly further reduce extra-FSU wheat imports.

Lower extra-FSU wheat imports in 1993/94 led to increased competition for market share (figure 20). The United States has held 20-30 percent of the total FSU wheat market in the last 2 marketing years. However, the U.S. market share in 1993/94 could be nearly cut in half. Canada and the EU, the FSU's other major wheat suppliers, also face significant reductions in 1993/94 wheat-market share.

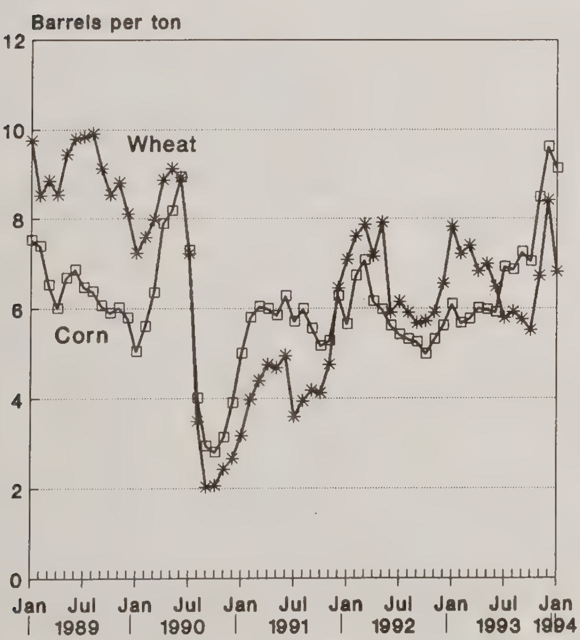
The reason for this intense competition is a sharp increase in intra-FSU wheat trade, which in 1993/94 appears to have accounted for as much as 50 percent of total wheat supply. Most of the intra-FSU supply is coming from **Kazakhstan**, which has had 2 good years of grain production following 1991/92, when output was cut by more than half. **Russia** and **Ukraine** have also provided the other FSU countries with some wheat supplies. Most of the other countries, particularly **Uzbekistan** and **Belarus**, are largely net wheat importers.

Little Immediate Change Expected in FSU's Coarse Grain Imports

In the short term, the downsizing of the FSU livestock sector will continue to dampen coarse grain import demand. The United States will likely maintain its market share as the FSU's primary corn supplier. However, expected increases in U.S. corn prices in 1994/95 could lead to increased competition from other exporters, such as China, which may be able to supply the FSU with corn at lower prices. Financial assistance will continue to be a strong determining factor of import source. Given sizable FSU production of barley, and no indications that production will be reduced in the near term, it is expected that import demand for barley will likely remain low.

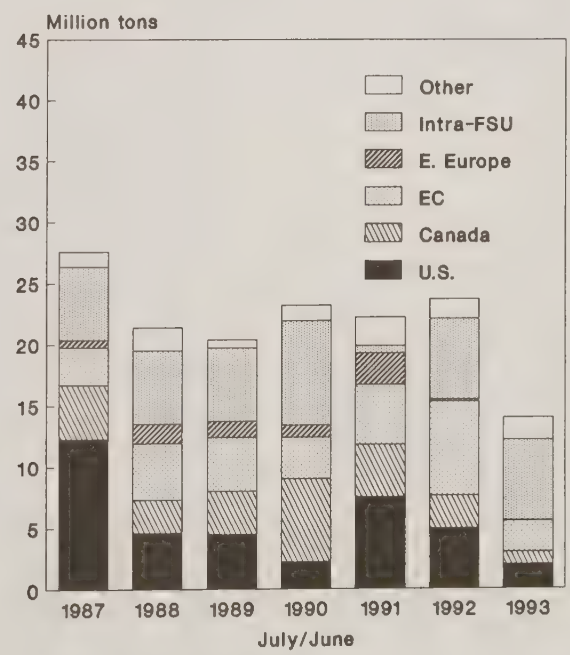
FSU coarse grain imports in 1993/94 decreased over 40 percent from reduced levels in 1992/93. U.S. exports, primarily of corn, are expected to be slightly lower than in 1992/93,

Figure 19
Grain/Oil Terms of Trade



Wheat price includes export subsidy.
Source: ERS.

Figure 20
FSU Wheat Imports



Estimates, 1993/94 projection.
Source: USDA.

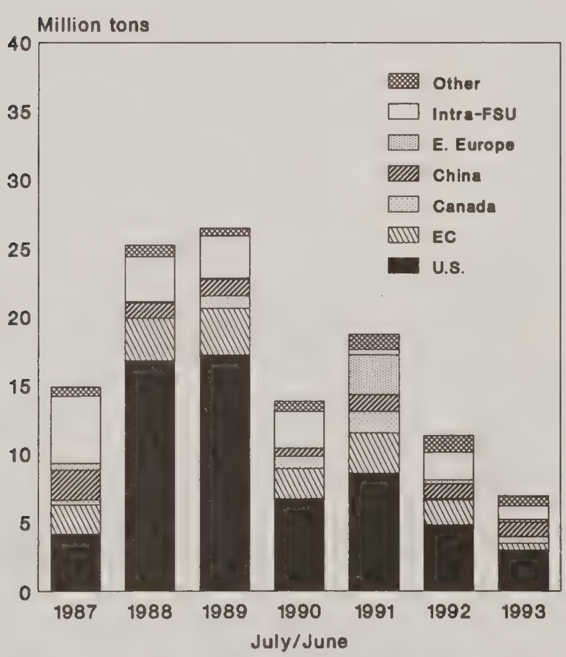
while the U.S. coarse grain market share likely remained fairly stable in 1993/94 (figure 21). Canada, China, and the EU, which combined account for 25-30 percent of total FSU coarse grain trade, are the other primary suppliers. Intra-FSU trade makes up around 20 percent of the total, which is less than the share for wheat, largely due to lower levels of surplus coarse grain supplies.

FSU Grain Trade: Controls Still in Effect but New Trends Noted

FSU grain trade is beginning to take new forms as the region moves from a centrally planned and obligatory-supply system to relatively freer trade. Numerous obstacles to free trade remain, nationally and regionally, since grain is still considered a "strategic commodity." In the long run, as the FSU trade regime becomes more liberal, there could be an increase in overall grain trade.

In contrast with the Soviet delivery system in place until 1991, which was controlled by Moscow and required mandatory republic deliveries to the All-Union fund at State-set prices and quantities, in some respects, grain trade between the former Soviet republics is beginning to move slowly toward more commercial terms. For example, **Kazakhstan,** the FSU's primary grain exporter, reportedly decided in September 1993 to charge its FSU trading partners world prices, quoted at $110-$125 f.o.b., for its grain. In addition, a portion of the grain sold requires payment in hard currency, with 50 percent of the payment up front. This led some countries, such as **Belarus,** which was supposed to receive 1 million tons of Kazakh grain in return for providing labor and machinery for Kazakhstan's harvest, to search for lower-priced imports from other suppliers. This development should have a positive effect if it fosters increased competition and prices, determined by supply and demand, as well as decreased use of barter.

Figure 21
FSU Coarse Grain Imports



Estimates, 1993/94 projection.
Source: USDA.

However, even with these reported changes, **Kazakhstan** has likely retained some barter trade, most notably with **Russia,** which provides Kazakhstan with energy supplies and machinery. Moreover, it is very likely that much of the other intra-FSU grain trade is conducted on barter or concessional terms. In addition, strict controls on most grain trade have been retained by many of the FSU governments. Grain is still considered a strategic commodity, and most if not all of the FSU countries have in place export barriers, such as quotas and licenses, largely to prevent an outflow of grain given internal FSU prices that are lower than world prices (table 41). For example, **Russia** has maintained export licensing and taxes for most grain, except rye. Also, most FSU nations continue to play a near-monopoly role in the domestic grain market, still controlling trade and distribution to a large extent.

Other noteworthy developments in FSU grain trade policy occurred in 1993. First, several FSU countries, in particular the **Baltic** nations, began to impose import barriers to protect domestic producers from surplus grain and grain products from other FSU countries. **Russia,** the FSU's largest grain importer, announced new import tariffs in March 1993, including a 1- percent ad valorem tariff on grain imports. Processed grain products, such as flour and starch, were assessed with 10- to 15-percent import tariffs. However, in April these tariffs were postponed until July for re-evaluation. As long as grain purchases are controlled to a large degree by governmental ministries and internal prices remain lower than world levels, it is unlikely that there will be a significant shift to a more protectionist, FSU grain import policy.

Second, there appears to be some lessening of government controls on grain exports, as several FSU countries find themselves with surpluses of certain kinds of grain. For example,

Table 41--FSU procurement and U.S. wheat prices, July 1993[1]

Country	Price	Share of U.S. price
	$/ton	*Percent*
Russia	59	46
Ukraine	44	34
Kazakhstan	55	42
Moldova[2]	122	94
Kyrgyzstan	52	41
Belarus	88	68
U.S. f.o.b. Gulf #2	129	100

[1] Procurement price for 3rd class hard wheat, 10-12 percent protein.
[2] August 1993.
Sources: ERS; Interfax.

Russia reportedly had as much as 5 million tons of surplus rye (from the 1992 and 1993 harvests), and no export quotas and licenses have been imposed for this grain. Various reports indicate that Nizhnii Novgorod, an oblast in central Russia, expects to export 100,000 tons of rye, with 50,000 tons already sold to the Czech Republic. Another Russian oblast, Omsk, also planned to export 75,000 tons of rye. However, export quotas, licensing, and taxes remain in effect for wheat, corn, and oilseeds.

Another trend recently observed in **Russia** is a growing awareness of relative import and domestic prices. For example, regions in the Far East have begun to import grain from non-FSU sources rather than purchase it domestically from central Russian oblasts, due to a sharp rise in transport costs that has presumably led to c&f prices of domestic grain that are higher than imported grain. Primorskii Krai, which is located in the Far East, plans to import grain from Canada and China in 1994. Australia has also reportedly exported to regions in the Russian Far East.

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Growing Private Sector Moderates Livestock Decline

The market-based downsizing of the FSU's livestock sector is likely to continue through 1994 as there is little likelihood that producer's terms of trade will improve significantly, or that the State will substantially raise producer subsidies, or that consumer demand for meat will change significantly. However, further growth of private holdings will continue to mitigate overall contractions in the livestock sector. Reduced meat consumption, decreased State subsidies on meat imports, and growing import tariffs will continue to depress total FSU meat imports. [Christian J. Foster]

The market-induced downsizing of the FSU's livestock sector is expected to continue through 1994, given little likelihood of improvement in producer's terms of trade, or substantial increases in support from the State, or significant growth in consumer demand for livestock products. Animal inventories and livestock-product output have fallen markedly during the last 3 years as prices were deregulated and State subsidies slashed, resulting in reduced consumer demand for meat and falling producer profitability. While the governments of the FSU countries have re-introduced varying levels of support for producers, thereby slowing the pace of market-based restructuring of the livestock sector, contractions in the livestock sector have continued. However, contraction may slow even further in 1994 as continued private-sector growth is accompanied by slower downsizing of State-sector farms.

Although subsidies from FSU governments to producers will probably not rise significantly in 1994, State support remains large. Without it most producers would not remain financially solvent. If State support were significantly boosted in 1994, the production decline in some FSU countries could be halted temporarily. Despite the continued drop in per capita meat consumption in most of the FSU countries last year, meat intake still remains above other countries with similar per capita incomes. Moreover, massive State subsidies to producers or consumers from already-tight budgets would be required to reverse the recent downward adjustments in meat consumption, a luxury few FSU countries can afford.

With reduced consumer demand for meat, decreased State subsidies on meat imports, and growing tariffs on meat imports in many FSU countries, total FSU meat imports are likely to remain at current low levels for the medium term. An exception has been Russia, where private-sector cash imports (mainly of poultry meat) have increased significantly in the last 2 years. Over the longer term, assuming the successful implementation of market reforms, real incomes should begin to rise, spurring renewed demand for livestock products, and possible increases in feed demand. On the other hand, postponement of economic reforms in the FSU countries will likely delay the growth of per capita real incomes and therefore import demand for high-value products.

Decline in FSU Livestock Output Lessens in 1993, Private Sector Growing

Output of livestock products continued its decline in most FSU countries in 1993, although at a slower rate than in 1992 (table 42). Overall output of meat in the FSU fell an estimated 9 percent in 1993, compared to a 13-percent drop in 1992. However, meat output in **Kazakhstan** and some of the **Central Asian** States rose slightly in 1993. The decline in total FSU egg output also lessened in 1993, down 8 percent in 1993 compared to an 11-percent drop in 1992. The decline in total-FSU milk output, likewise, lessened in 1993, down 3 percent, compared to a 7-percent decline in 1992.

The slower rate of overall decline in 1993 was largely the result of continued output growth in the private sector (individual subsidiary holdings and private farms) and slower contraction of the subsidized State sector. The 7-percent overall decline in meat output in **Russia** last year was the result of a 4-percent increase in the private sector that offset much of the 13-percent decline in the State sector (figure 22). (In 1992, meat output rose 2 percent in the Russian private sector, while the State sector's output fell 19 percent.) Moreover, the private sector's share of total meat output in both the FSU and Russia increased from 31 percent in 1991 to 41 percent in 1993. The private sector's share in FSU total milk output rose from 30 percent in 1991 to 40 percent in 1993, and in egg production, from 28 to 34 percent.

Animal Holdings Shifting From State to Private Sector

Livestock inventories in the FSU continued to decline during 1993. January 1, 1994, total inventories of cattle were down about 5 percent from the previous year, cows down 2 percent, hogs down 10 percent, and combined sheep and goat numbers down about 7 percent. Only poultry inventories, down about 14 percent during 1992, may have stabilized during 1993. The overall decline in animal numbers has been mitigated by growth in the private sector, which has offset much of the contraction in the State sector.

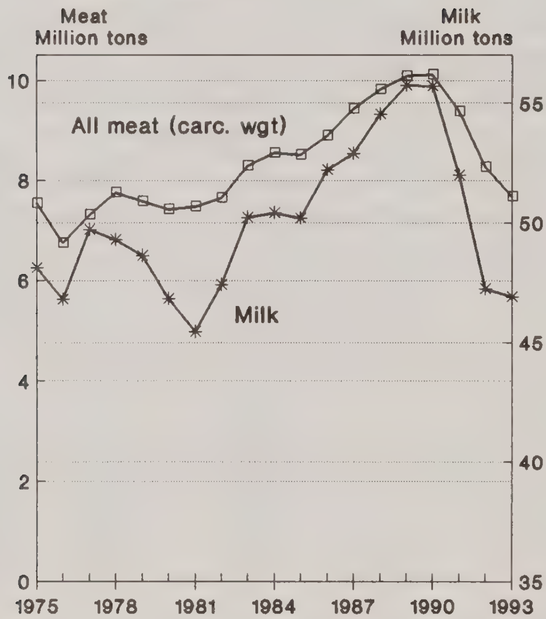
The declining inventories reflect worsened terms of trade for State livestock producers, particularly hog producers, as market forces change relative prices and re-direct State subsidies. The animal husbandry sector in most FSU countries is being squeezed on one side by decreased consumer demand as real incomes have fallen, and on the other side by sharply increased

Table 42--Production of livestock products from all farms, FSU and major countries

Year	Meat [1] Total	Beef & veal	Pork	Mutton, lamb & goat	Poultry	Other	Milk	Wool [2]	Eggs
FSU	1,000 tons								Million
1985	17,131	7,400	5,900	800	2,800	231	98,608	447	77,255
1988	19,680	8,616	6,595	960	3,235	274	106,754	478	85,150
1989	20,137	8,800	6,700	1,000	3,400	237	108,529	479	84,854
1990	20,011	8,814	6,646	1,008	3,286	257	108,384	475	81,725
1991 [3]	18,400	8,200	6,000	875	3,090	235	101,000	441	79,200
1992 [3]	16,100	7,400	5,150	825	2,510	215	90,500	394	70,700
1993 [3]	14,700	6,775	4,650	815	2,250	210	88,000	na	64,800
Russian Federation									
1985	8,513	3,575	2,978	321	1,532	107	50,196	217	44,277
1988	9,813	4,150	3,399	371	1,776	117	54,534	227	49,144
1989	10,082	4,256	3,499	385	1,831	111	55,742	230	49,024
1990	10,112	4,329	3,480	395	1,801	107	55,715	227	47,470
1991	9,375	3,989	3,190	347	1,751	98	51,971	204	47,132
1992	8,260	3,632	2,787	329	1,428	84	47,236	179	42,902
1993	7,700	3,384	2,551	338	1,321	106	46,897	161	40,349
Ukraine									
1985	3,918	1,740	1,436	35	636	71	23,039	28.7	16,645
1988	4,395	2,019	1,576	44	704	52	24,228	30.2	17,672
1989	4,430	2,011	1,595	44	731	49	24,377	30.1	17,393
1990	4,358	1,985	1,576	46	708	43	24,508	29.8	16,287
1991	4,029	1,878	1,421	40	654	36	22,409	26.6	15,188
1992	3,405	1,654	1,180	35	498	38	19,114	23.1	13,445
1993	2,920	1,392	1,042	34	421	31	18,148	na	11,800
Kazakhstan									
1985	1,133	506	185	221	159	62	4,763	97.0	3,803
1988	1,493	689	255	279	201	69	5,322	108.4	4,202
1989	1,573	727	273	289	210	74	5,563	109.9	4,233
1990	1,548	710	275	285	201	77	5,642	107.9	4,185
1991	1,524	724	274	270	185	71	5,555	104.4	4,075
1992	1,258	596	217	243	139	63	5,265	96.5	3,565
1993	1,260	630	197	250	120	63	5,548	96.0	3,375
Belarus									
1985	1,032	470	424	8.0	124	6	6,759	1.2	3,363
1988	1,180	573	458	8.9	133	7	7,460	1.2	3,572
1989	1,195	582	455	8.7	142	7	7,419	1.1	3,651
1990	1,181	586	438	8.2	142	7	7,457	1.0	3,657
1991	1,065	530	382	6.0	141	6	6,812	1.0	3,718
1992	950	495	323	5.0	121	6	5,885	na	3,501
1993	870	442	305	6.0	113	4	5,560	na	3,505
Baltic States									
1985	1,045	427	502	12	101	3	6,190	0.9	2,524
1988	1,117	452	533	10	117	5	6,472	0.8	2,846
1989	1,094	428	528	10	125	3	6,488	0.8	2,821
1990	1,058	436	494	9	118	1	6,258	0.7	2,639
1991	934	396 [3]	416 [3]	9 [3]	107 [3]	6	5,750	0.7	2,556
1992	793	350 [3]	335 [3]	9 [3]	95 [3]	4	4,818	0.8	1,931

na = Not available.
[1] Carcass weight, including fat. [2] Physical weight. [3] Estimates.
Source: Statkom SNG.

Figure 22
Meat and Milk Output, Russian Federation



1993 preliminary.
Source: Goskomstat Rossii.

production costs, the result of price liberalization and reduced subsidies from FSU governments. In response to the unprofitable nature of most commercial production, State livestock facilities have continued reducing oversized and unproductive herds through reduced breeding, slaughter, higher mortality, and by selling animals to individuals in the private sector. In the **Russian** State sector, cattle and swine birthing rates were down 4-5 percent in 1993 from the year before, and animal mortality for the third consecutive year was up, reaching 11 deaths per 100 hog in 1993.

The transfer to private holdings, particularly of cattle, and sheep and goats, can be largely explained by the structure and interests of the private sector. The vast majority of animal husbandry in the private sector is not on private farms, which account for only 1-2 percent of inventories, but rather on individual subsidiary plots, where a small number of animals are maintained primarily for household needs, i.e. food and barter. As animals are not generally raised in the private sector for commercial purposes (for marketing and profit), and as each household only raises a few animals that can be grazed, fed household waste, or fed grain from in-kind farm payments, opportunity costs are perceived as lower. While the trend of increasing numbers of small, private animal holdings will likely continue in the near term, this trend probably reflects a transitionary stage. As more sophisticated markets develop, economic incentives will drive private producers to improve production efficiency and raise marketing volume, resulting in larger-scale holdings.

The decline in total FSU hog inventories has been one of the steepest, primarily due to the system of production under the former State-planned system, and the slower transfer of swine to the private sector. Hogs, more than cattle, and sheep and goats, were concentrated in large State complexes that did not produce their own feeds, so they were dependent on the State for feed supplies. It is these high-cost complexes in the FSU countries that have been the hardest hit by the reduction of State subsidies, and therefore, inventory drawdowns. Moreover, since swine cannot be grazed and require more costly protein feeds, private producers have been less willing to raise them, even though hogs can generally be marketed faster than cattle.

In **Russia**, total January 1, 1994, inventories of cattle were down 5 percent from the year before, the result of a 9-percent drop in State inventories and an 8-percent increase in private holdings (table 43 and figure 23). Total Russian cow inventories fell 1 percent, with nearly all of the 6-percent decrease in the State sector offset by private-sector growth. Total hog inventories declined 9 percent, with a 3-percent rise in private holdings doing little to offset the 14-percent contraction of the State sector. The private sector's share of total **Russian** cattle, cow, hog, and sheep and goat inventories as of January 1, 1994, were 26, 35, 29, and 41 percent, respectively (figure 24).

Subsidies Keep Most Livestock Producers in the State Sector Afloat

Had it not been for substantial State intervention and support (credits, subsidies, rebates, procurement bonuses, debt forgiveness), commercial livestock husbandry would have become unprofitable in nearly all FSU countries in 1993. In most FSU countries, livestock producers in the State sector barely remained solvent, even with substantial State support. The main financial problem facing the livestock sector in 1992 was the sharp disparity between input and output prices--the result of economic reforms and unique market conditions. In 1993, the primary problem for producers in many FSU countries was the failure on the part of the governments and downstream State enterprises to pay for deliveries and to follow through with promised subsidies. Given tough budgetary constraints in all FSU countries, it is unlikely that producers' financial situation will improve significantly in 1994. If State support does increase this year, livestock producers may do better in the short term, but monetary infusions are likely to lead to much higher inflation.

In **Russia**, reported "profitability" (taking into account subsidies) of State livestock producers on average was 15 percent in 1993, down from 42 percent in 1992, and far below grain producers' average of 127 percent last year (table 44). While livestock production was considered "profitable" as a result of State subsidies, it was in fact, only breaking even by Western standards.

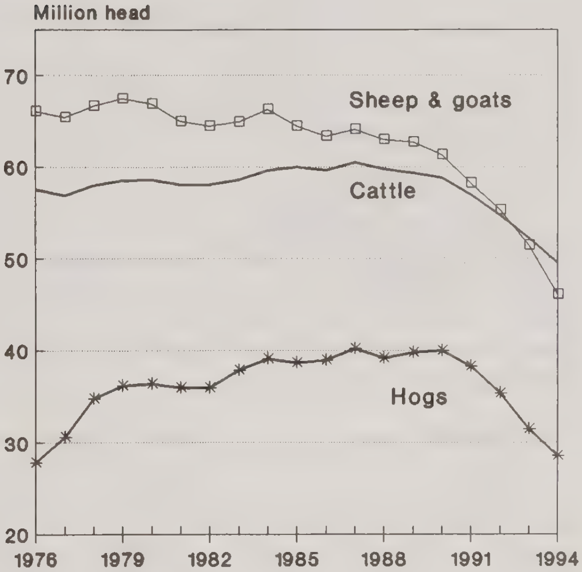
According to **Russia's** official State Committee for Statistics, livestock producers in the State sector would have been in the red by 191 billion rubles (over $120 million) in 1993 without subsidies from the regional or federal governments. The severe price squeeze of 1992 (when production costs rose 8-14 times and procurement prices only 4-8 times) dissipated in 1993, as costs rose 6-7 times and procurement prices 12 times on average. In 1993, however, profitability was the result of State subsidies, which in many cases have not yet

Table 43--January 1 livestock inventories and animal units from all farms, FSU and major countries

Year	Cattle Total	Cattle Cows	Hogs	Sheep & goats	Horses	Poultry	Total animal units [2]
FSU				*Million head*			
1989	119.6	41.8	78.1	147.4	5.9	1,199.5	156.5
1990	118.4	41.7	79.0	145.4	5.9	1,213.9	156.1
1991	115.7	41.5	75.6	140.3	5.9	1,201.0	152.7
1992	112.2	41.7	69.1	136.2	5.9	1,182.9	147.9
1993	106.9	41.2	60.4	131.0	5.9	1,005.6	137.9
Russian Federation				*Million head*			
1989	59.3	20.8	39.8	62.7	2.6	646	77.6
1990	58.8	20.8	40.0	61.3	2.6	654	77.4
1991	57.0	20.5	38.3	58.2	2.6	660	75.5
1992	54.7	20.6	35.4	55.3	2.6	652	72.9
1993	52.2	20.2	31.5	51.4	2.6	568	68.0
1994	49.5	19.9	28.6	46.1	2.6	575	65.0
Ukraine				*1,000 head*			
1989	25,621	8,567	19,471	9,243	782	254,500	31,437
1990	25,195	8,528	19,947	9,003	754	255,100	31,269
1991	24,623	8,378	19,427	8,419	738	246,104	30,455
1992	23,728	8,263	17,839	7,829	710	243,121	29,249
1993	22,457	8,057	16,175	7,237	700	214,582	27,265
Kazakhstan				*1,000 head*			
1989	9,752	3,273	3,188	36,498	1,581	58,400	14,516
1990	9,818	3,327	3,264	36,223	1,619	59,300	14,628
1991	9,756	3,367	3,224	35,700	1,626	59,900	14,562
1992	9,592	3,490	2,976	34,556	1,666	59,932	14,364
1993	9,576	3,623	2,591	34,420	1,704	54,031	14,199
1994	9,347	3,687	2,445	34,208	1,777	na	na
Belarus				*1,000 head*			
1989	7,271	2,481	5,134	600	223	47,471	8,128
1990	7,166	2,439	5,204	500	219	49,768	8,101
1991	6,975	2,362	5,051	400	217	50,600	7,914
1992	6,600	2,300	4,700	400	215	51,700	7,579
1993	6,200	2,200	4,300	400	210	48,900	7,118
Baltic States				*1,000 head*			
1989	4,714	1,693	5,424	405	120	36,597	6,025
1990	4,700	1,686	5,365	404	120	36,632	5,997
1991	4,518	1,657	4,796	367	120	33,672	5,643
1992	4,288	1,627	4,224	391	121	32,927	5,309
1993	3,459	1,473	2,768	350	115	17,115	3,987

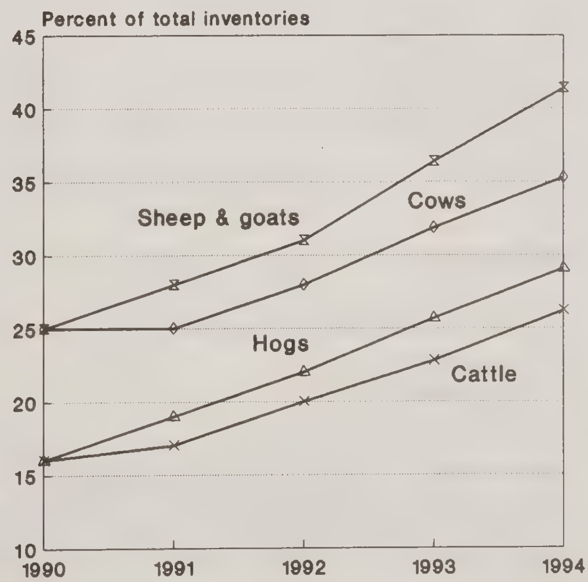
na = Not available.
[1] Preliminary.
[2] In terms of cows. Conversion ratio as follows: Cattle (other than cows) 0.6; hogs 0.3; sheep and goats 0.1; horses 1.0; poultry 0.02.
Source: Statkom SNG.

Figure 23
Livestock Inventories, All Farms, Russian Federation



January 1.
Source: Goskomstat Rossii.

Figure 24
Private Livestock Holdings, Russian Federation



January 1. Includes private farms and subsidiary holdings.
Source: Goskomstat Rossii.

Table 44--Livestock sector, financial indicators, Russian Federation

	1985	1990	1991	1992	1993
			Rubles		
Cost of production [1]					
Per centner of cattle wgt. gain	290	344	590	5,306	39,200
Per centner of hog wgt. gain	223	261	492	5,938	50,300
Per centner of poultry wgt. gain	162	163	331	4,867	41,800
Per centner of milk	38.8	41.5	71.1	668	5,300
Per 1,000 eggs	63	70	130	1,947	16,300
Procurement price per centner					
All animals [2]	na	339	487	2,787	36,231
Cattle	na	369	508	2,450	na
Hog	na	310	450	3,361	na
Poultry	na	na	na	na	na
Eggs (1,000)	na	105	228	1,953	na
Milk	na	65	82	574	na
Average retail price per kilogram [3]					
For meat (beef, pork, and poultry)	1.81	1.90	4.79	95.80	1,230
Eggs (10)	1.05	1.10	2.27	29.26	335
Milk (liter)	na	na	na	9	157
Bread	0.37	0.35	0.82	10.25	165
			Percent		
Profitability on State farms [4]					
Cattle production	4.4	21.9	23.2	57.1	9.7
Swine production	4.1	23.1	14.5	36.8	20
Poultry production	20.5	28.7	21.7	7.4	16
Eggs	59.2	51.1	74.1	29.5	27
Milk	20.9	56.2	16.7	30.8	13
Inflation rate	--	5.3	92.6	1,090	900

na = Not available.
-- = Not applicable.

[1] The prime cost of production (sebestoimost') per centner of weight gain in the State sector.
[2] Data for 1992 do not include subsidies. Data for 1993 are preliminary. Liveweight.
[3] These are State retail prices, not farmers' market prices. Data for 1993 are preliminary.
[4] The Russian term for profitability (rentabil'nost') equals sales revenue (from realized output) minus prime cost divided by the latter. In 1992, profitability includes State subsidies for fuel.

Source: Goskomstat Rossii.

been received by producers. Furthermore, the 1993 profitability rate was based on calculated revenues from sales to State processing enterprises, which had failed in many cases to make payments for deliveries. In **Kazakhstan**, the output of all livestock products, except eggs, was reportedly unprofitable in 1993.

Animal Productivity Shows Signs of Stabilization

Stabilization of livestock productivity last year in some FSU States, including **Russia**, may be largely attributable to improved feed availability per animal. Feed fed per animal likely rose in 1993, as drawdowns in livestock herds exceeded reductions in feed supplies. Increased feed per animal, along with more efficient use of other inputs (e.g., labor and fuel) likely account for much of the reported stabilization of animal productivity in **Russia** (table 45). Moreover, higher livestock productivity in the private, rather than the State, sector contributed to the overall stabilization of productivity.

In **Russia**, egg output per hen on State-sector farms, which fell 2-3 percent in 1992 for the third consecutive year, was largely unchanged in 1993. Likewise, weight gain per cattle stabilized in 1993, after falling 7 percent in 1991 and 9 percent in 1992. Milk output per cow in the State sector actually increased slightly in 1993, following a 20-percent drop in 1992 from its 1990 peak.

While animal productivity improved somewhat in **Russia** last year, there is still substantial room for increasing its performance, and therefore less reason for concern over the drop in--what many in the West consider over-expanded--animal inventories. In Russia, milk output per cow in the State sector is only one-third that of the United States, and pork output per animal, only about 60 percent. The output of eggs per hen is about 90 percent that of the United States.

Russian feed conversion rates are also substantially less than those in the United States. For example, Russia uses roughly 15 units and 9 units, respectively, of feed (oat equivalent) per kilogram of beef and pork output, while comparable U.S. rates are only about 5 and 4 feed units per kilogram of beef and pork output.

Russia's low animal productivity and feeding efficiencies are mainly due to poor-quality feeds (both in content and form), poor animal health care, inadequate animal housing and feed preparation and storage facilities, and animal genetics. Reportedly, Russian livestock farms only have storage facilities for half of all hay and feed roots collected.

Feed Use of Grain Declines as Inventories Are Cut

Faced with worsening terms of trade, livestock producers in the State sector have continued to reduce costs by cutting inventories, thereby decreasing feed needs. USDA projects FSU feed and residual (waste) grain use in 1994/95 at about 106 million tons, down 8 percent from 1993/94, and down over a quarter from the peak of 150 million tons in 1990/91.

Although overall use of grain for feed is falling, the share of grain in total feeds may be increasing, particularly that fed in an unprocessed form. With the growth of private holdings in the livestock sector, it is likely that pasture grazing has significantly increased. Use of costly mixed feed continued to decline in 1993 in most FSU countries, although the fall was

Table 45-—Livestock productivity indicators, Russian Federation

	1980	1985	1990	1991	1992	1993 [1]
Eggs per layer, State sector	210	224	236	231	224	222
Milk per cow (kg)	2,169	2,334	2,731	2,567	2,332	na
State sector only	2,136	2,340	2,783	2,574	2,243	2,257
Weight gain per cattle (kg)	99	105	121	112	102	na
State sector only	89	97	108	97	83	82
Weight gain per swine (kg)	97	101	118	111	102	na
State sector only	73	80	84	73	61	61
Weight at time of sale to the State, cattle (kg)	na	355	385	374	361	na
Weight at time of sale to the State, swine (kg)	na	107	118	117	111	na

na = Not available.
[1] Preliminary.
Sources: *Ross. Fed. v 1992 g., Stat. ezh.*, Moscow, 1993; *Agroprom. kom. Ross. Fed. v 1992 g.*, Moscow, 1993; *O razvit. ekon. reform. v Ross. Fed. (I polugod. 1993 god.)*, Moscow, 1993.

likely less than the year before. In Russia, mixed feed production at State enterprises fell 12 percent in 1993, half the 26-percent drop in 1992 but still only about 60 percent of the 41 million tons produced in 1990.

Total use of roughage crops (coarse and succulent) continued to decline in 1993, although use per animal was likely up. In **Russia**, total area planted to roughage crops was reduced by just over 5 percent in 1993, and 10 percent from 1990 (table 46). Russian production of corn silage, feed roots, and hay are all estimated down in 1993 from the year before. Roughage crops collected in FSU countries for 1993/94 overwintering were reported to be at the same level as the year before, and on a per-head basis were up 5 percent. **Russia** entered the 1993/94 winter with total roughage crops collected reportedly down 2-3 percent from the year before, but up 8 percent on a per-animal basis. On the down side, crop quality was said to be lower than the year before.

FSU Meat Consumption Continues To Decline

Real wages in nearly all countries of the FSU decreased further in 1993. This continued the trend of the prior 2 years of consumers switching away from more expensive meat to less costly bread and potato products. Although food prices were raised, price controls were maintained in most FSU countries, but did little to support past consumption patterns. In **Russia**, unlike most other countries, real wages actually rose 10 percent in 1993 over 1992, and per capita meat consumption reportedly increased 5 percent from 1992's low (table 47).

Per capita meat consumption in 1993 in all FSU countries was 20 percent or more below the high of 1990, when meat prices were heavily regulated and subsidized by the State and meat consumption was near that of Great Britain and Finland. However, per capita meat consumption in most FSU States is still higher than in other countries with similar per capita incomes. For the FSU countries to reverse the market-based adjustments of consumption patterns, massive State subsidies to producers and/or consumers from already over-stretched budgets would be required. This would further distort prices. Few if any of the FSU countries are in a position to adopt such inflationary policies. Over the longer term, as successful market economies are established, inflation is reduced, the private sector strengthens, and personal savings rise, purchasing power should increase in the FSU, giving rise to increased consumption of higher-value products, such as processed meats.

Contraction of the FSU meat and dairy processing industries continued in 1993, reflecting the drop in overall demand for its products, more output by private households and non-State enterprises, and reduced State import subsidies on raw materials for processors. While overall output of the **Russian** food processing industry fell in 1993, some meat and dairy products with longer shelf lives, such as preserved meats and cheeses, rose somewhat (table 48).

Despite Falling State Procurements, State Still Dominates Livestock-Product Marketing

State procurements of livestock and dairy products declined further in 1993 in the FSU countries. This reflected the reduction in overall output, reduced incentives to sell to State enterprises due to high inflation, and the growth of subsidiary holdings in the private sector, which consume much of its own output. In spite of the declining role of the government in marketing of livestock products in the FSU countries, federal and regional governments are still the dominant players.

In **Russia**, total State procurements of meat in 1993 equalled 5.9 million tons (liveweight), down 15 percent from 1992, and down 46 percent from the 1986-90 annual-average of 11 million tons (figure 25). As a share of total output, State procurements remained high (about 50 percent in 1993), but were down sharply from the 1986-90 average of 74 percent. In **Ukraine**, 1993 procurements totaled 2.4 million tons, 48

Table 46--Roughage-crop area and output, all farms, Russian Federation

Year	Total roughage-crop area [1]	Corn silage, green chop, haylage	Feed roots	Hay, perenial	Hay, annual	Hay, cuttings
	Million hectares	*Million tons*				
1981-85 avg.	na	165.0	15.9	18.0	5.4	23.7
1986-90 avg.	43.3	193.0	20.3	23.4	6.0	24.0
1990	44.6	189.0	17.2	25.2	5.6	23.1
1993	44.0	151.0	11.6	24.8	4.5	21.3
1992	42.5	150.0	8.7	20.5	4.2	18.3
1993 [2]	40.1	na	na	na	na	na

na = Not available.
[1] Includes corn silage, green chop, hay, haylage, and feed roots.
[2] Estimate.
Source: Goskomstat Rossii.

Table 47--Annual per capita consumption of selected food products, FSU countries

Republic	Meat & meat products [1]					Fish & fish products					Milk & milk products [2]					Eggs				
	1985	1990	1991	1992	1993 [3]	1985	1990	1991	1992	1993 [3]	1985	1990	1991	1992	1993 [3]	1985	1990	1991	1992	1993 [3]
	Kilograms															Number				
Russian Fed.	62	69	63	55	58	22.5	20.3	15.8	13.3	12.0	344	386	347	281	303	299	297	288	263	276
Ukraine	56	57	55	45	40	18.5	17.5	12.2	7.2	5.8	350	373	345	285	270	276	272	256	212	200
Belarus	58	62	60	59	58	19.7	19.4	12.8	5.5	4.4	399	425	415	396	376	315	323	320	305	275
Moldova	45	49	47	43	35	13.4	12.0	6.7	2.3	2.0	294	303	259	198	188	209	203	195	166	158
Kazakhstan	48	61	61	51	46	10.9	10.0	7.0	na	na	260	307	303	269	242	217	222	206	175	160
Uzbekistan	28	28	26	23	20	5.0	4.9	3.1	2.1	2.0	180	210	196	175	160	107	120	107	67	64
Kyrgyzstan	34	47	42	40	38	6.5	6.3	3.7	1.9	1.8	182	266	249	206	201	124	154	144	117	111
Tajikistan	27	23	19	14	12	3.3	3.3	2.7	1.3	1.2	152	161	124	127	106	104	111	82	57	54
Turkmenistan	37	38	34	34	28	4.6	4.3	3.1	2.5	2.2	168	207	176	185	175	92	98	82	72	70
Armenia	46	40	27	16	15	4.9	7.5	5.2	3.9	3.1	433	446	392	122	110	148	163	143	65	60
Azerbaijan	32	29	23	17	na	4.7	4.2	1.8	na	na	293	292	250	204	na	155	143	125	na	na
Georgia	42	29	23 [3]	na	na	9.1	8.2	6.6 [3]	na	na	309	289	231 [3]	na	na	148	140	112 [3]	na	na
Lithuania	72	60	66	60	56	17.8	18.6	10.5	na	na	409	480	315	280	312	285	305	293	225	173
Latvia	74	73	65	51	na	23.8	22.5	18.0	13.0	na	455	454	420	370	na	295	259	232	213	na
Estonia	78	75	63	55	44	24.6	24.0	21.0	na	na	489	487	409	350	325	296	289	260	na	197
Total FSU	54	59	na	na	na	18.0	16.5	11.7 [3]	na	na	325	358	na	na	na	260	258	na	na	na

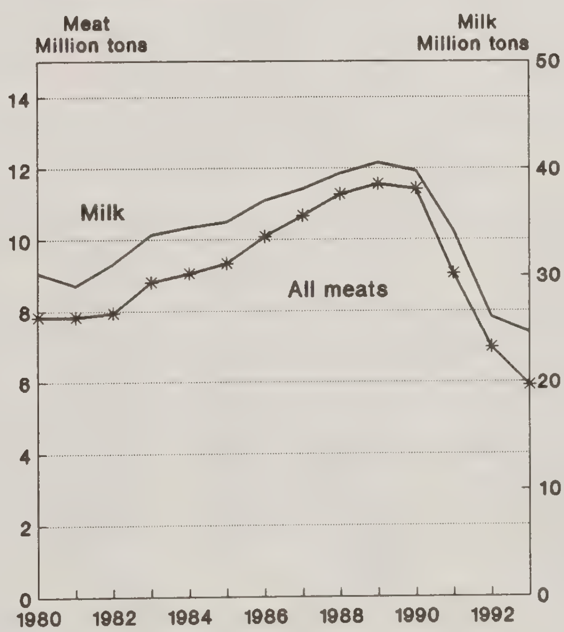
na = Not available.
[1] Excludes lard and edible fat. [2] Includes milk equivalent of butter. [3] Estimated.
Sources: Statkom SNG.

Table 48--Output of livestock and dairy products, Russian Federation [1]

Year	Meat, processe	Meat, canned	Sausage	Cheese	Butter	Milk, whole
	Million tons	*Million jars*	*Million tons*			
1980	4,502	407	1,773	332	611	15.5
1985	5,334	547	1,944	407	721	17.9
1986	5,754	na	2,034	422	764	18.9
1987	6,106	na	2,126	438	786	19.5
1988	6,444	na	2,220	455	809	20.1
1989	6,621	na	2,264	460	820	20.9
1990	6,642	545	2,283	458	833	20.8
1991	5,822	478	2,077	394	729	18.6
1992	4,784	558	1,547	299	762	9.8
1993 [2]	3,174	565	1,424	304	697	7.8

na = Not available.
[1] Output from food processing enterprises.
[2] Preliminary.
Source: Goskomstat Rossii.

Figure 25
Meat and Milk Procurements, Russian Federation



Liveweight, includes poultry.
Source: Goskomstat Rossii.

percent below the 1986-90 average, and just over 60 percent of output--far below the 72-percent average of the late 1980's.

In order to encourage sales to State enterprises in 1993, FSU countries continued to offer producers special incentives. In **Belarus**, the government paid bonuses for livestock procurements. In **Russia**, producer subsidies were paid for sales to the State. In **Ukraine**, procurement prices were indexed to inflation. Despite these incentives, producers continued to market more of their output themselves, using it to pay workers in kind, or to barter. In addition, as more output comes from private producers, who consume rather than market most of their output, less meat is flowing through State channels.

Meat Imports Continue Decline, Private Imports Rising

FSU meat and dairy imports in 1994 are not likely to pick up significantly from last year's low levels. Reduced consumer demand, excess supply in some regions, increasing calls to protect domestic producers through the imposition of tariffs and financial constraints, unwillingness to incur more trade-related debts, reduced State import subsidies for processors, and State control of interregional and interrepublic exports all point toward weak livestock- product import demand in the near term for both intra- and extra-FSU trade. Humanitarian and concessional sales will continue to account for most FSU-country imports. The exception could be the rise in private trade by certain cash-rich regions, cities, and enterprises, which recently imported a significant volume of poultry. Additionally, some of this private trade (interregional and international) is not accounted for in official trade data, thus slightly understating total trade.

Over the longer term, assuming the successful implementation of market reforms in the FSU countries, real incomes should begin to rise, spurring renewed demand for livestock products. Rising incomes and meat consumption in the FSU could result in increased import demand for some products, such as poultry and pork, and other high-value products. In those FSU countries where conservatives are able to slow economic restructuring through the postponement of market reforms, income growth will likely be delayed.

Overall FSU meat and dairy imports continued to fall in 1993, as contractions in official trade more than offset the increases in private channels. Many countries proposed raising or instituting new food import tariffs in 1994, to protect domestic producers from reportedly cheaper imports. In March 1994, the **Russian Federation** introduced much opposed, 15- to 20-percent tariffs on imports of livestock and dairy products. However, soon thereafter, the tariffs were postponed. Import subsidies provided to domestic processors by local governments are expected to be reduced or eliminated in many FSU countries this year.

Total extra-FSU meat imports in 1993 are estimated by USDA at just above 500,000 tons, about 20 percent below 1992. **Russia** has accounted for over 75 percent of extra-FSU meat imports. Most intra-FSU meat imports are accounted for by: Russia (about 65 percent), **Uzbekistan** (about 15 percent), **Azerbaijan**, and **Turkmenistan** (nearly 10 percent each).

Table 49--Net imports of meat and meat products, FSU countries [1]

Country	1990			1991			1992		
	Intra-FSU	Extra-FSU	Total net import	Intra-FSU	Extra-FSU	Total net import	Intra-FSU	Extra-FSU	Total net import
					Tons				
Russian Fed.	645,390	786,140	1,500,784	546,463	918,700	1,465,163	238,600	463,794	702,394
Ukraine	−299,628	9,318	−290,310	−219,896	3,010	−216,886	−186,200	na	na
Belarus	−173,998	−2,200	−176,198	−163,752	−931	−164,683	−93,100	−9,220	−102,320
Moldova	−53,359	−337	−53,696	−29,685	0	−29,685	−27,600	0	0
Kazakhstan	−166,261	−1,818	−160,076	−134,331	6,496	−134,859	−55,600	11,894	−43,706
Uzbekistan	128,611	77,258	205,869	78,421	68,885	147,306	51,400	29,797	81,197
Kyrgyzstan	431	65	496	1,828	0	1,828	−2,800	−5	−2,805
Tajikistan	18,272	15,832	39,104	5,411	12,808	18,219	3,400	0	0
Turkmenistan	38,091	16,566	54,657	18,901	22,200	41,101	29,500	35,096	64,596
Armenia	10,523	49,638	60,161	4,406	0	4,405	5,300	na	na
Azerbaijan	13,468	56,387	69,885	22,877	25,243	48,120	30,300	na	na
Georgia	23,697	23,490	47,187	5,079	0	5,079	6,600	na	na
Lithuania	−111,368	−482	−111,840	−82,492	0	−82,492	30	na	na
Latvia	−37,829	0	−37,824	−31,132	0	−31,132	na	na	na
Estonia	−36,055	0	−36,055	−22,275	0	−22,275	na	na	na

na = Not available. (−) = export.
[1] On calendar-year basis.
Sources: Goskomstat SSSR; Statkom SNG.

Table 50--Net imports of milk and milk products, FSU countries [1]

Country	1990 Intra-FSU	1990 Extra-FSU	1990 Total net import	1991 Intra-FSU	1991 Extra-FSU	1991 Total net import	1992 Intra-FSU	1992 Extra-FSU	1992 Total net import
					1,000 tons				
Russian Fed.	2,675	4,412	7,087	2,628	3,519	6,147	-271	66	-205
Ukraine	-1,605	23	-1,582	-1,281	5	-1,276	-288	na	na
Belarus	-1,525	15	-1,510	-1,304	1	-1,303	-265	- 11	-276
Moldova	-93	3	3	-39	0	-39	-144	0	-144
Kazakhstan	101	47	148	91	8	99	210	1	211
Uzbekistan	506	611	1,117	457	130	587	192	6	198
Kyrgyzstan	31	30	61	31	26	57	-10	0	-10
Tajikistan	128	96	224	16	109	125	18	0	18
Turkmenistan	133	205	338	105	83	188	268	0	269
Armenia	488	451	939	142	0	142	75	na	na
Azerbaijan	548	536	1,083	340	392	733	170	na	na
Georgia	438	487	926	102	0	102	36	na	na
Lithuania	-1,079	-17	-1,096	-775	0	-775	na	na	na
Latvia	-457	2	-455	-281	0	-281	na	na	na
Estonia	-364	2	-362	-233	0	-233	na	na	na

na = Not available. (-) = export.
[1] On calendar-year basis.
Sources: Goskomstat SSSR; Statkom SNG.

Ukraine, the **Baltics**, **Belarus**, **Kazakhstan**, and **Moldova** make up nearly all of the intra-FSU exports of meat (table 49). The main intra-FSU milk- and milk-product importers (each accounting for 15-20 percent of total imports) have been **Turkmenistan, Russia, Kazakhstan, Uzbekistan** and **Azerbaijan**. The largest intra-FSU milk exporters have been **Belarus, the Baltics** and **Ukraine** (table 50).

While overall FSU imports have fallen, U.S. meat and dairy exports to the region were a record-high $259.1 million in 1993, up 49 percent in value from 1992, and 35 percent above the previous record of $192.4 million in 1990. The rise in U.S. exports in 1993 is mainly the result of a surge in poultry exports to $90.7 million, which were mainly cash sales, and in pork exports to $24.3 million, which were largely donations. U.S. donations and sales of butter, the second largest livestock-product export to the FSU in 1993, rose to $86.5 million. Poultry sales in 1994 could match last year's exports, but it is unlikely that pork donations will continue this year.

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Despite Small Increase in 1993/94, FSU Protein Meal Supplies Remain Low

FSU oilseed and meal imports in 1994/95 are not likely to increase, despite continued below-average domestic output of oilseeds and products and increasing emphasis in some FSU regions on raising livestock productivity. In the near term, extra-FSU imports of oilseeds and oilseed products will continue to be primarily driven by the availability of financing. The United States, however, is expected to remain the primary exporter of these products to the FSU because of its ability to finance sales and offer assistance programs. [Jaclyn Y. Shend and Sharon S. Sheffield]

FSU oilseed and products supply and use in 1994/95 (October/September) will likely be characterized by slightly larger oilseed production, stable vegetable oil and meal consumption, and unchanged or lower imports. Supply and use levels in 1994/95 and in the next 2-3 years are expected to remain below the high levels of the late 1980's. Total oilseed production could increase as sunflowerseed yields are expected to improve from last year's poor performance. Lower levels of oilseed output and imports, relative to the late 1980's, will result in reduced oilseed crushing for vegetable oil and oilseed meal production. Despite the FSU's significant protein shortfall in animal feeds, import demand for oilseeds and products will continue to be limited by financial constraints, a contracting and unprofitable livestock sector, and decreased real income that has lowered consumer demand for vegetable oil and livestock products. While lower FSU imports are expected in the short-to-medium run, the United States should maintain its large share of the FSU oilseed and products market, due to its ability to offer export assistance and donation programs.

FSU Oilseed Production May Increase Slightly in 1994

Total FSU oilseed production could increase slightly in 1994, mainly as a result of some improvement in yields, while total oilseed area is estimated to remain relatively unchanged. Despite a possible increase in 1994, FSU oilseed output is not likely in the near term to reach the levels of the late 1980's, when sunflowerseed yields and cottonseed area were at record highs. In the longer term, however, market forces could drive farmers to expand area, and raise yields closer to world levels, resulting in more significant production increases.

Oilseed production in the FSU in 1993 was down only slightly from the preceding year, but was nearly 20 percent below the 1986-90 5-year average (table 51). In 1993, higher cottonseed production in **Central Asian** countries largely offset the fall in sunflowerseed production in **Russia**. Soybean and rapeseed output were relatively unchanged (figure 26). While the total oilseed yield remained stable, area declined, as planting of less profitable oilseed crops (such as soybeans, rapeseed, and other minor oilseeds) was reduced. Sunflowerseed and cottonseed area in 1993 were largely unchanged from 1992.

Sunflowerseed Area Is Driven by Profitability

FSU production of sunflowerseed in 1994 could increase, as higher yields offset a small decline in area. The decrease in overall sunflowerseed production in 1993 was mainly the result of poor weather during fall harvesting, and increasing input costs in **Russia** and **Kazakhstan**. Sunflowerseed crops in **Ukraine** and **Moldova** remained largely unchanged (table 52). In addition, an increasing share of oilseeds is produced and sold through private channels, which may not be fully accounted for in total output. In **Russia**, private farm production of sunflowerseed in 1993 increased to 17 percent of total output from 8 percent in 1992. Moreover, sunflower procurement prices were considerably below world prices and may have caused farmers to underreport total production in hopes of finding alternative buyers.

FSU sunflower area, however, may either fall slightly or remain unchanged in 1994 due to the nearly 60-percent drop in 1993 profitability, the result of input costs rising faster than procurement prices. However, sunflowerseed profitability still remains high and above that of other crops.

In 1993, FSU sunflower area remained largely unchanged from 5 million hectares in 1992, which was substantially higher than in preceding years. The 12-percent jump in **Russian** sunflowerseed area in 1992 from a year earlier was likely the result of sharp increases in procurement prices and higher profitability. In 1991, sunflowerseed profitability rose 60 percent, and in 1992, profitability increased another 65 percent. This resulted in larger sunflowerseed area in 1993. In addition, sunflowerseed procurement prices tripled from November 1992 to May 1993, rising faster than other oilseed prices.

FSU sunflowerseed yields in 1994 could improve from last year's poor performance. The 1993 sunflowerseed yield in **Russia** was the lowest in nearly a decade. At the beginning of the harvest, sunflowerseed yields were reported above the prior year's depressed levels, but with delays in harvesting due to heavy rains, yields sharply fell. Sunflowerseed is particularly sensitive to harvest disruptions and delays. Sunflowers are harvested later than most grains, so that 1992 procurement prices were no longer indexed to inflation, while prices for inputs such as fuel and machinery parts were rapidly increasing. In addition, producers applied only 35-40 percent as much desiccant as needed (a chemical used to dry seeds

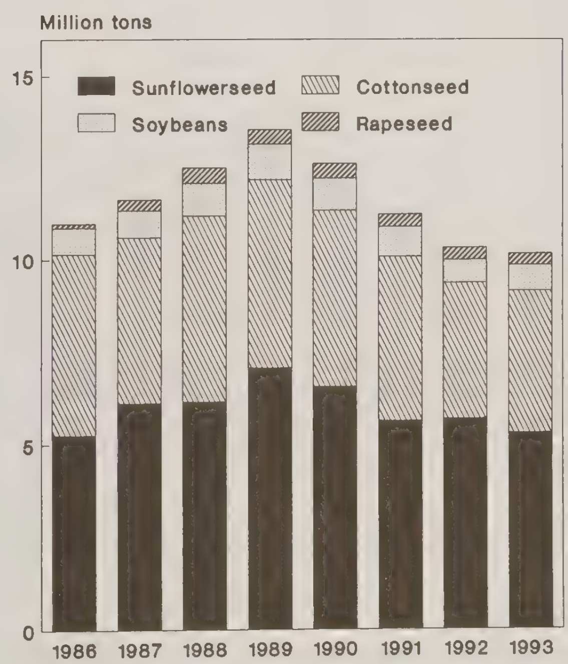
Table 51--Total oilseed area, yield, and production, selected FSU countries [1]

Country	Average 1981-85	Average 1986-90	1986	1987	1988	1989	1990	1991	1992	1993 [2]
Area					*1,000 hectares*					
Russian Federation	3,428	3,668	3,163	3,593	3,755	3,823	4,007	3,717	3,921	3,781
Ukraine	1,750	1,782	1,662	1,737	1,806	1,855	1,851	1,754	1,811	1,787
Kazakhstan	341	382	322	367	429	405	387	420	572	536
Total FSU	8,832	9,369	8,686	9,374	9,598	9,604	9,584	9,040	9,327	9,084
Yield					*Tons per hectare*					
Russian Federation	0.84	1.12	0.98	1.07	1.06	1.29	1.16	1.03	0.99	0.95
Ukraine	1.38	1.65	1.62	1.67	1.67	1.70	1.60	1.52	1.34	1.34
Kazakhstan	0.90	0.98	1.05	0.96	0.92	0.88	1.08	0.87	0.66	0.75
Total FSU	1.21	1.35	1.29	1.29	1.34	1.44	1.39	1.29	1.14	1.14
Production					*1,000 tons*					
Russian Federation	2,863	4,099	3,106	3,829	3,962	4,938	4,662	3,830	3,900	3,600
Ukraine	2,422	2,948	2,697	2,908	3,018	3,148	2,969	2,674	2,432	2,400
Kazakhstan	307	373	339	354	396	357	417	365	375	400
Total FSU	10,693	12,664	11,191	12,139	12,858	13,856	13,278	11,653	10,600	10,400

na = Not available.
[1] Total oilseeds include sunflowerseed, cottonseed, soybean, rapeseed, flaxseed, mustardseed, castor beans, safflowerseed, sesameseed, and peanuts. USDA data for total oilseeds only include sunflowerseed, cottonseed, soybean and rapeseed. and do not account for minor oilseeds listed above. [2] Estimates.
Sources: Goskomstat SSSR; Goskomstat Rossii; Minstat Ukrainy; Goskomstat Kazakhstana.

before harvesting), which may have also depressed yields. Reduced mineral fertilizer and pesticide applications may have affected sunflowerseed more than other crops (such as grains), because sunflowerseed is a more input-intensive crop. However, for the 1994 harvest, **Russia** and **Ukraine**, the two main FSU sunflowerseed producers, are planning to import pesticides, which may improve sunflowerseed yields. In addition, comparing sunflowerseed yields in the FSU with yields in other countries, FSU yields have the potential to improve in the future, particularly in **Russia** (figure 27).

Figure 26
Oilseed Production, FSU



Source: USDA.

Cottonseed Output May Remain Relatively Stable in 1994

Total FSU cottonseed output may be relatively unchanged in 1994, as yields improve and area falls slightly. Increasing opportunities to sell cotton on the world market may raise farmers' incentives to achieve higher productivity. Cottonseed production went up in 1993 as a result of higher yields due to better weather, while area declined only marginally (table 53). Cottonseed area declined for 6 consecutive years, although the 1993 decrease was considerably smaller than in prior years.

In the short term, cottonseed area may further decline. The **Central Asian** countries are attempting to achieve greater grain self-sufficiency by increasing grain area, which in the last few years has been taken out of cotton area (figure 28).

At the same time, cotton is the main source of hard currency for these countries, creating incentives to increase cotton production and area. As a result of these two opposing forces, in the long term grain area will probably be expanded on new lands, while cotton area stabilizes.

Soybean and Rapeseed Production Expected To Remain Low in 1994

Soybean and rapeseed output in 1994 will likely remain relatively unchanged. In the long term, however, as prices increase to world levels, production of these two oilseeds may rise as a result of larger area and higher yields.

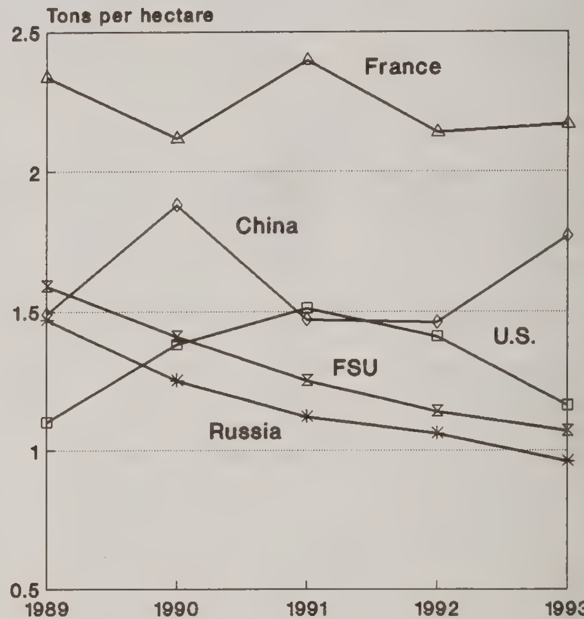
Table 52--Sunflowerseed area, yield, production, and State procurement, selected FSU countries

Country	Average 1981-85	Average 1986-90	1990	1991	1992	1993
Area			*1,000 hectares*			
Russian Fed.	2,328	2,446	2,739	2,576	2,889	2,903
Ukraine	1,560	1,572	1,636	1,601	1,641	1,627
Kazakhstan	101	118	137	190	298	271
Moldova	138	129	134	127	131	140 [1]
Georgia	12	12	13	12	12 [1]	10 [1]
Total FSU	4,142	4,282	4,665	4,512	4,978	4,958 [1]
Yield			*Tons per hectare*			
Russian Fed.	1.00	1.28	1.25	1.12	1.06	0.96
Ukraine	1.46	1.74	1.69	1.55	1.39	1.35 [1]
Kazakhstan	0.94	0.99	1.03	0.57	0.41	0.40
Moldova	1.81	1.96	1.88	1.34	1.50	1.37 [1]
Georgia	0.66	0.67	0.65	0.91	0.83 [1]	0.60 [1]
Total FSU	1.20	1.46	1.40	1.25	1.14	1.07 [1]
Production			*1,000 tons*			
Russian Fed.	2,323	3,121	3,427	2,895	3,073	2,800
Ukraine	2,287	2,732	2,725	2,448	2,277	2,200
Kazakhstan	94	117	141	108	122	107
Moldova	250	253	252	169	197	192
Georgia	8	8	9	10	10 [1]	6
Total FSU	4,974	6,237	6,559	5,635	5,683	5,309
State procurement			*1,000 tons*			
Russian Fed.	1,821	2,379	2,939	1,801	1,167	600
Ukraine	1,847	2,209	2,040	1,810	1,358	1,100
Kazakhstan	67	87	110	53	44	15
Moldova	191	187	162	91	86	40
Georgia	5	4	3	3	3	3 [1]
Total FSU	3,932	4,865	4,653	3,758	2,658	1,758

[1] SNG estimate.
Sources: USDA; Goskomstat; Statkom SNG.

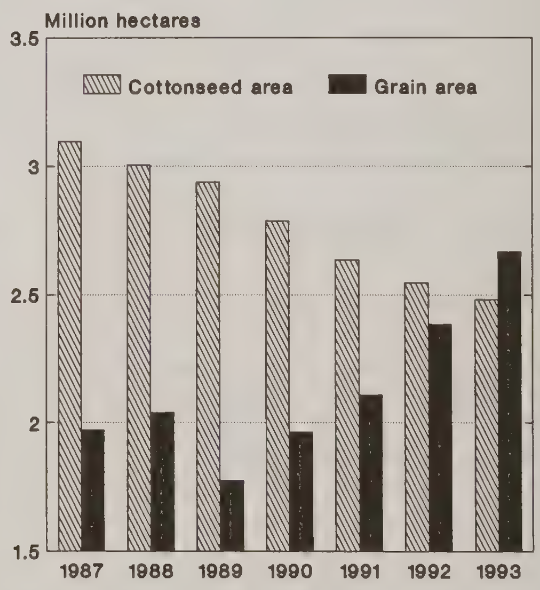
Despite previous government efforts to boost soybean output and area in the **Russian Federation,** the main soybean producer, 1993 soybean production was largely unchanged from a year earlier. Soybean area in 1993 was about 5 percent below the previous year (table 54). Although, soybean pro-

Figure 27
Sunflowerseed Yields, FSU and Selected Countries



Source: USDA.

Figure 28
Cottonseed and Grain Area, Central Asia



Central Asia: Uzbekistan, Turkmenistan Tajikistan, Kyrgyzstan.
Source: Statkom SNG; 1993 estimated.

curement prices were raised substantially in nominal terms, from November 1992 to May 1993, soybean prices actually decreased in real terms, likely causing farmers to plant less soybeans for the 1993 harvest. In addition, Russian soybean procurement prices remain considerably below world prices, which may further reduce incentives to grow soybeans in the near term (figure 29).

Total FSU rapeseed production has been declining because of reduced area in **Russia**. Despite efforts to increase rapeseed area, procurement prices for rapeseed remained below those for soybeans and sunflowerseed, providing less incentive for farmers to grow this crop (figure 30). In **Kazakhstan**, however, rapeseed area and production are sharply expanding and replacing soybeans, possibly due to lower production costs.

Table 53--Cottonseed area, yield, and production, selected FSU countries [1]

Country	Average 1981-85	Average 1986-90	1990	1991	1992	1993 [2]
Area			*1,000 hectares*			
Uzbekistan	1,931	1,996	1,830	1,720	1,667	1,627
Turkmenistan	533	635	623	604	570	574
Tajikistan	308	314	304	298	286	260
Azerbaijan	297	289	264	245	233	225
Kazakhstan	130	125	120	117	110	110
Kyrgyzstan	44	30	30	26	22	19
Total FSU	3,242	3,389	3,171	3,010	2,888	2,815
Yield			*Tons per hectare*			
Uzbekistan	1.63	1.54	1.60	1.56	1.42	1.52
Turkmenistan	1.18	1.25	1.29	1.29	1.25	1.29
Tajikistan	1.64	1.73	1.55	1.55	0.80	1.15
Azerbaijan	1.60	1.34	1.25	1.31	0.86	0.76
Kazakhstan	1.28	1.55	1.56	1.41	1.27	1.09
Kyrgyzstan	1.09	1.52	1.55	1.31	1.36	1.32
Total FSU	1.53	1.48	1.50	1.47	1.27	1.36
Production			*1,000 tons*			
Uzbekistan	3,148	2,985	2,926	2,676	2,370	2,480
Turkmenistan	628	728	803	777	710	740
Tajikistan	504	518	470	462	230	300
Azerbaijan	474	391	331	321	200	170
Kazakhstan	166	186	187	165	140	120
Kyrgyzstan	48	41	46	34	30	25
Total FSU	4,968	4,849	4,763	4,435	3,680	3,835

[1] Cottonseed is an estimate derived by applying a 0.55 coefficient to seed-cotton production.
[2] Preliminary SNG data.
Sources: USDA; Goskomstat; Statkom SNG.

Increasing Marketing Channels for Sunflowerseeds

The role of government involvement in vegetable oil production in the FSU countries has been shrinking rapidly, as oilseed procurements have declined. State procurement of sunflowerseed (as a share of production) has fallen considerably in recent years, as producers seek new marketing channels or choose to hold output as a hedge against inflation (figure 31). In **Russia**, State sunflowerseed procurement in 1993 was less than 21 percent of total production, compared to nearly 40 percent in 1992, and about 80 percent during the late 1980's. Although 1993 procurement prices for oilseeds increased substantially (in September 1993, the procurement price for sunflowerseed was 100 rubles per ton ($94), compared to the November 1992 price of 14,000 rubles per ton ($33)), government funds were inadequate to cover planned seed purchases.

In addition, increasing amounts of oilseeds are marketed through private barter transactions. Farmers pay State enter-

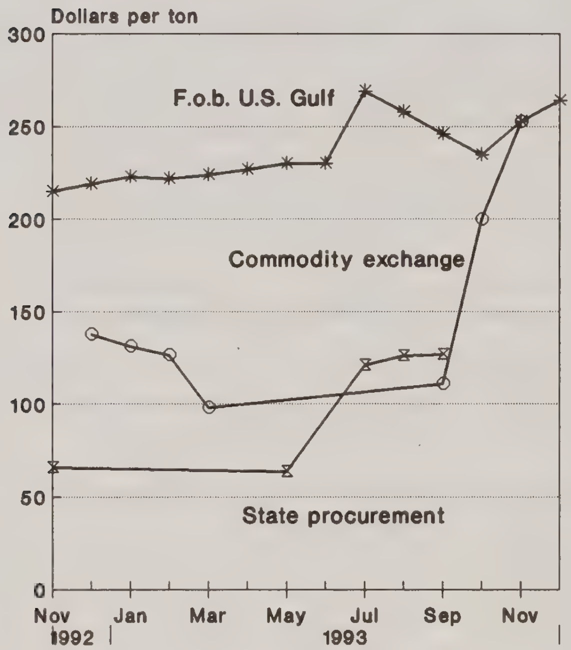
Table 54--Soybean area, yield, and production, selected FSU countries

Country	Average 1981-85	Average 1986-90	1990	1991	1992	1993 [1]
Area			*1,000 hectares*			
Russian Fed.	685	631	675	664	645	619 [2]
Ukraine	90	82	93	102	97	80
Kazakhstan	13	29	23	18	11	6 [2]
Moldova	12	31	27	20	25 [2]	25
Georgia	16	11	8	6	6	7
Kyrgyzstan	3	2	2	1	1	1
Total FSU	818	786	828	812	785	738
Yield			*Tons per hectare*			
Russian Fed.	0.57	1.03	1.06	0.94	0.78	0.89
Ukraine	0.89	1.16	1.07	1.32	0.78	1.25
Kazakhstan	0.95	1.29	1.44	1.44	1.09	1.00
Moldova	0.98	1.19	0.90	0.98	1.00	1.20
Georgia	0.32	0.56	0.44	0.53	0.50	0.57
Kyrgyzstan	1.25	1.92	1.74	1.64	1.50	2.00
Total FSU	0.62	1.05	1.06	1.00	0.79	0.94
Production			*1,000 tons*			
Russian Fed.	391	649	717	624	505	550
Ukraine	80	95	99	135	76	100
Kazakhstan	12	37	33	26	12	6
Moldova	12	37	24	20	25 [2]	30
Georgia	5	6	3	3	3	4
Kyrgyzstan	4	4	3	2	2	2
Total FSU	503	829	879	810	623	692

[1] Estimates.
[2] Preliminary SNG data.
Sources: USDA; Goskomstat; Statkom SNG.

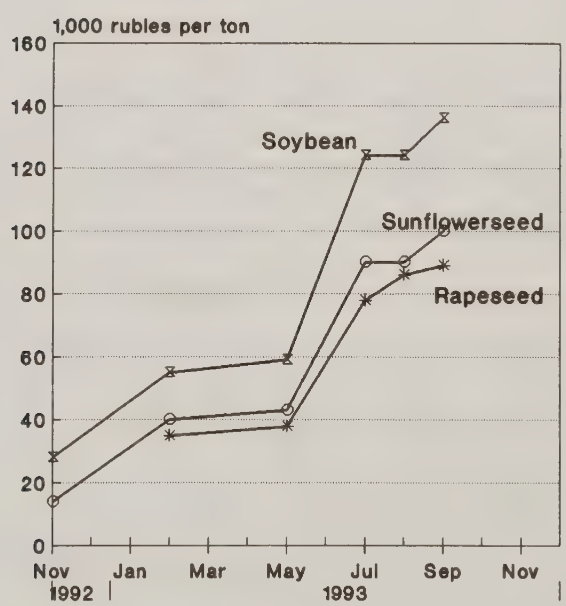
prises a fee for crushing, then have the vegetable oil returned to the farm for marketing. In **Russia**, 68 percent of 1993 sunflowerseed production went through these private channels, compared to 25 percent in 1992. State oilseed reserves were used to make less than half of 1993 vegetable oil output.

Figure 29
Soybean Prices, Russian Federation



Sources: Krest'yanskie vedomosti; USDA.

Figure 30
State Procurement Prices for Oilseeds, Russian Federation



Procurement prices in nominal terms.
Source: Krest'yanskie vedomosti.

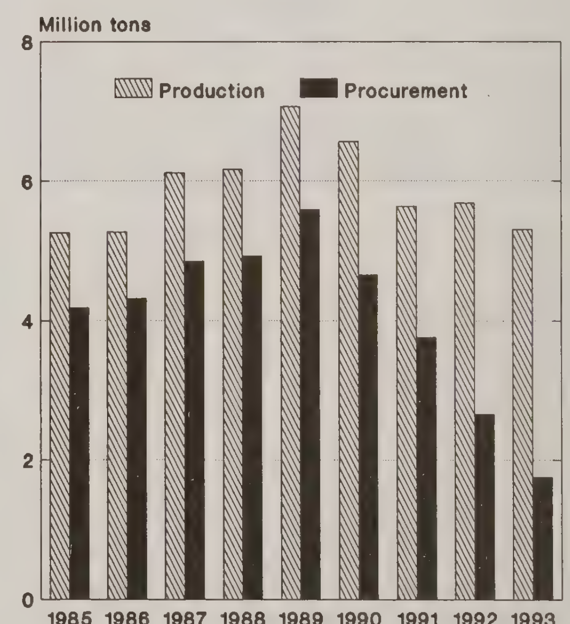
FSU Vegetable Oil Output May Stabilize in 1994

In 1994/95, FSU vegetable oil production could stabilize or even increase slightly, with a small rise in seed output, higher vegetable oil prices, and a reduction in processing losses. In the near future, vegetable oil output may rise as farmers have greater incentives to produce oilseeds, and as opportunities increase for farms and processors to sell through private market channels. Thus, even if imports decline slightly, 1994/95 vegetable oil supplies could stabilize. USDA estimates total FSU vegetable oil supplies in 1993/94 will be down from a year earlier, mainly as a result of lower imports and smaller seed output.

FSU production of vegetable oil in calendar year 1993 was reported down nearly 10 percent from the previous year, and more than 25 percent below the 1986-90 5-year average (table 55). Vegetable oil output for 1993 was largely produced from the 1992 oilseed crop, and total FSU oilseed production declined 10 percent in 1992. FSU production of vegetable oil in 1994 could stabilize, even with a slight drop in 1993 oilseed output, as increased price incentives result in less waste and losses.

Vegetable oil production in **Russia** in 1993 increased 5 percent, after falling sharply in 1992. Part of the increase in vegetable oil production may have been attributable to strict export quotas on seeds. Moreover, reported vegetable oil production likely does not account for all output in Russia, as well as other FSU countries, as increasing amounts of vegetable oil are marketed through private channels.

Figure 31
Sunflowerseed Production and Procurement, FSU



Source: Statkom SNG.

Table 55--Vegetable oil production, FSU countries[1]

Country	1970	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993[2]
								1,000 tons							
Russian Fed.	939	823	844	826	941	957	775	1,012	959	1,080	1,127	1,159	1,165	994	1,048
Ukraine	1,071	941	864	938	1,001	879	846	876	971	1,047	1,078	1,070	995	786	628
Belarus	22	15	9	13	17	16	20	19	21	23	25	26	25	8	4
Moldova	155	133	105	90	107	108	108	110	116	115	118	126	118	58	54
Kazakhstan	62	84	87	80	73	67	74	75	80	85	92	95	101	60	44
Uzbekistan	294	412	446	427	388	396	451	508	510	498	513	514	461	380	338
Kyrgyzstan	17	20	22	18	13	12	12	13	13	14	15	14	15	7	4
Tajikistan	69	95	96	92	87	84	88	91	92	92	93	80	76	47	28
Turkmenistan	37	39	48	58	71	81	88	94	97	107	108	104	104	85	85
Armenia	11	7	10	6	5	7	7	8	9	7	8	6	4	1.5	0
Azerbaijan	28	49	51	56	53	48	55	57	58	50	49	41	36	22	15
Georgia	9	9	10	9	11	10	11	10	15	12	9	14	10[3]	7[3]	4[3]
Lithuania	5	4	2	4	4	4	2.1	0.01	0.01	0.4	0.6	1.1	0.2	0	0[3]
Latvia	22	19	14	12	13	8	8	9	9	12	13	14	11	6[3]	3[3]
Total FSU	2,784	2,650	2,606	2,629	2,782	2,676	2,545	2,882	2,950	3,142	3,249	3,264	3,122[3]	2,462[3]	2,254[3]

[1] On calendar-year basis.
[2] Preliminary SNG data. [3] Estimates.
Sources: Goskomstat; Statkom SNG.

Russian Vegetable Oil Consumption Rebounds in 1993

Following sharp declines since 1990, **Russian** per capita consumption of vegetable oil increased a reported 20 percent in 1993 from poor 1992 levels, although it was still considerably below the high levels of the late 1980's (table 56). The rise in per capita consumption resulted partly from larger vegetable oil supplies. An estimated 10-percent increase in real wages last year also contributed to the rise in consumption. In addition, for most of 1993, vegetable oil prices did not increase as rapidly as overall inflation.

In most FSU countries, vegetable oil consumption continued to decrease, primarily because of lower vegetable oil output. In the long term, however, as market forces develop throughout the FSU countries and real wages increase, total FSU consumption of vegetable oil should rebound.

Little Change in 1994/95 Oilmeal Supplies Expected

FSU oilmeal supplies in 1994/95 are likely to remain relatively stable. A possible decrease in protein imports due to financial constraints may be offset by a small rise in domestic oilmeal production. USDA estimates FSU oilmeal output in 1993/94 will be largely unchanged from a year earlier (about 4 million tons). Total 1993/94 oilmeal supplies are estimated at about 6 million tons, slightly higher than a year earlier, because of a small increase in oilseed and meal imports. However, 1993/94 oilmeal supplies were considerably below the 9-million ton average for the 1986-90 period, when meal imports and output were larger (figure 32).

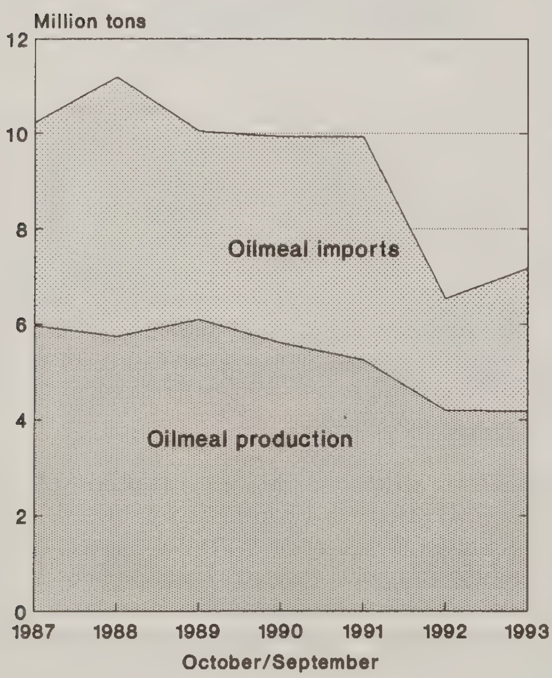
Oilmeal use has declined since 1991, the result of shrinking demand for costly mixed feeds. Since the drop in meal supplies parallels livestock-sector declines, the total FSU oilmeal deficit in feed rations remains largely unchanged from previous years; i.e., at about 10-15 million tons in soybean meal equivalent (assuming 15-percent protein content in feed rations). In 1993/94, the small increase in oilmeal supplies, coupled with further downsizing of animal inventories, may have contributed to a small improvement in protein availability per animal and some stabilization of livestock productivity compared to the previous year.

In the near term, despite a continued reduction of animal inventories, FSU countries are not likely to significantly alleviate the protein deficit in feeds, mainly due to financial constraints hindering meal imports, increasing costs of production, and inefficient processing facilities limiting meal output. In the long term, as market reforms raise the need to improve feed rations, total meal supplies may increase.

Table 56--Annual per capita consumption of vegetable oil, FSU countries [1]						
Country	1980	1985	1990	1991	1992	1993 [2]
			Kilograms			
Russian Fed.	9.1	9.8	10.2	7.8	6.5	7.8
Ukraine	10.0	10.6	11.6	11.2	11.0	10.8
Belarus	7.4	8.4	8.6	7.3	6.7	6.5
Moldova	10.0	12.3	14.1	11.6	8.5	8.0
Kazakhstan	7.8	9.8	10.9	9.0	na	7.0
Uzbekistan	10.4	11.2	12.6	13.6	12.4	12.0
Kyrgyzstan	7.4	9.1	10.6	8.7	7.4	6.7
Tajikistan	10.0	11.4	12.1	10.5	8.1	7.7
Turkmenistan	7.6	8.0	8.5	8.8	8.5	8.6
Armenia	2.7	2.4	3.1	1.6	na	na
Azerbaijan	2.5	3.1	2.5	0.6	na	na
Georgia	4.7	5.7	6.0	4.8 [2]	na	na
Lithuania	6.3	7.8	6.7	3.6	1.8	2.0
Latvia	8.8	8.8	7.8	3.8	3.9	na
Estonia	9.0	9.5	7.0	6.3	1.7	3.3
Total FSU	8.8	9.7	10.2	8.7 [2]	na	na

na = Not available.
[1] On calendar-year basis.
[2] Preliminary.
Sources: Statkom SNG.

Figure 32
FSU Oilmeal Availability



Source: USDA.

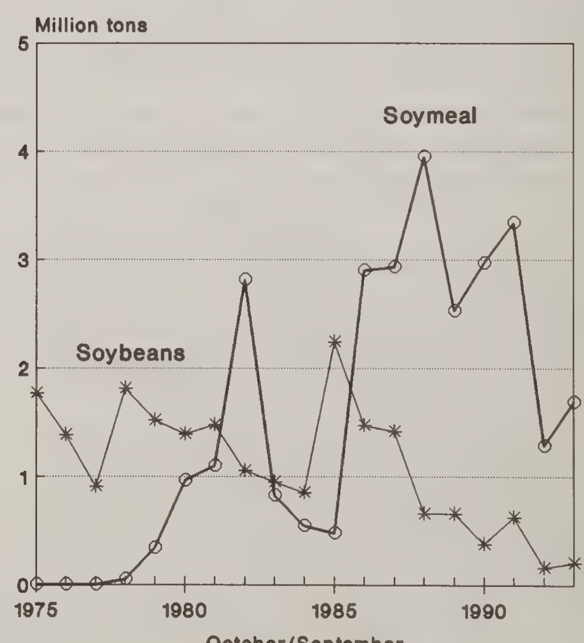
Growth in 1994/95 FSU Oilseed Trade Unlikely

FSU protein imports in 1994/95 are expected to remain stable or possibly decrease from 1993/94. Despite continued domestic oilseed production below the high levels of the late 1980's, and increased emphasis in some regions on improving feed efficiencies, extra-FSU imports of oilseeds and oilseed products will continue to be primarily driven by financing availability in the near term. Continued contraction of the livestock sectors of most FSU countries will also likely mitigate any large increase in protein demand. Intra-FSU trade of oilseeds and products will probably remain stable, or possibly increase over the long run, as regional trade ties are gradually restored.

During the last 2-3 years, nearly all extra-FSU protein imports have been financed through commercial and concessional credits and donations, with a small amount sold through barter or countertrade transactions. This financial constraint has kept extra-FSU imports relatively low over the last few years compared to historical levels, and is expected to continue to dampen FSU protein imports for the next 2-3 years. However, in the longer term, as economic restructuring proceeds in the FSU, protein import demand should be increasingly driven by factors such as the size and profitability of the livestock sector (particularly nonruminants), and relative domestic and import prices of oilseeds, meal, and other feeds.

While FSU protein demand is expected to slowly grow over the long term, it is likely that the current preference for oilmeal over oilseeds will continue. For example, prior to 1982/83, the FSU showed a preference for soybeans over meal (figure 33). However, by the late 1980's, FSU soybean meal imports increased dramatically, while soybean purchases trailed off.

Figure 33
Extra-FSU Soybean and Meal Imports



1992/93 estimate, 1993/94 forecast.
Source: USDA.

The reasons for this preference include relative prices, infrastructure, stocks, and more recently, reduced crushing capacity, as inefficient crushing facilities are closed for modernization. However, there have already been some shifts in protein import demand in certain FSU countries. For example, **Ukraine** and **Kazakhstan** have requested U.S. commercial export financing for soybeans, rather than meal, in fiscal 1994, which suggests that these FSU countries have available crushing capacity and want to produce vegetable oil in addition to protein meal. Over the longer term, as reconstruction of the processing sector is completed, and import demand is determined by economic factors, a preference for soybeans could develop in some years; depending on domestic oilseed production; the size of the livestock sector; relative bean, meal, and oil prices; and consumer demand.

USDA Includes Intra-FSU Trade in Oilseed Trade Estimates

USDA estimates: 1993/94 total FSU imports of oilseeds at 205,000 tons, up almost 25 percent from 1992/93's low level; oilmeal at nearly 3 million tons, up more than 25 percent from 1992/93; and imports of vegetable oil at 0.9 million tons, a 25-percent reduction from the previous year. Decreased consumer demand for vegetable oil and livestock products and financial constraints explain relatively lower FSU oilseed, meal, and vegetable oil imports. The increase in projected FSU oilseed and protein meal imports in 1993/94 is largely due to late shipments of programmed 1992/93 food assistance.

In July 1993, USDA added intra-FSU trade to its trade estimates, beginning with the marketing year 1987/88. Most intra-FSU trade consists of sunflowerseed and cottonseed, while soybeans and soybean products make up most extra-FSU imports (tables 57-58). As a result, these figures are not fully comparable with USDA trade statistics prior to 1987/88, which do not include intra-FSU trade. While estimating intra-FSU trade is made difficult by a lack of published statistics, data on Soviet-period interrepublic trade flows provide some insight into intra-FSU trade of oil and protein.

For example, several years of total and intra-FSU vegetable oil trade data have been published in various official sources. While data on the types of vegetable oil that were traded is not available, it is assumed that sunflowerseed oil and cottonseed oil make up most intra-FSU trade. Calendar year data on intra-FSU trade flows suggest that in 1990, around 880,000 tons of vegetable oil were sold in intra-FSU trade, while in 1992, the volume was reduced substantially, to less than 200,000 tons (table 59). These data also show that **Ukraine, Moldova, Uzbekistan, Turkmenistan**, and **Azerbaijan** (in 1990) were net intra-FSU trade exporters of vegetable oil, with the first two countries exporting sunflowerseed oil, and the others exporting cottonseed oil.

While much of the reported decline is due to lower production and consumption, the lower trade levels also reflect the disruption in interrepublic trade that began in 1990-91 as the Soviet political and economic system began to collapse. Another reason that reported trade is lower is that all trade is not captured by official data, due to low reliability of customs data, increasing trade outside of government channels, and

Table 57--FSU oilseed and products trade [1]

Year [2]	Oilseeds	Oilseed meal	Vegetable oil
		1,000 tons	
Imports			
1987/88	1,550	4,259	1,142
1988/89	724	5,450	1,799
1989/90	717	3,960	1,462
1990/91	435	4,324	982
1991/92	685	4,671	1,380
1992/93	166	2,352	1,201
1993/94 [3]	205	2,999	911
Exports			
1987/88	0	1,259	722
1988/89	97	1,478	807
1989/90	171	1,401	726
1990/91	240	1,313	635
1991/92	336	1,272	558
1992/93	410	1,037	402
1993/94 [3]	420	1,107	264

[1] Includes extra- and intra-FSU trade.
[2] October/September.
[3] Forecast.
Source: USDA (May 1994).

Table 58--Extra-FSU soybean, soymeal, and soyoil imports

Year [1]	Soybeans	Soymeal	Soyoil
		1,000 tons	
1989/90	661	2,526	179
1990/91	380	2,968	175
1991/92	630	3,341	240
1992/93	166	1,288	240
1993/94 [2]	205	1,690	190

[1] October/September.
[2] Forecast.
Source: USDA (May 1994).

the general difficulties of data collection following the breakup of the Soviet Union.

FSU oilseed trade is characterized by extra-FSU oilseed imports, mainly soybeans, and extra-FSU exports of sunflower seeds, primarily from **Russia** and **Ukraine**. Very little intra-FSU trade of FSU-produced oilseeds is assumed, as most intra-FSU trade is protein meal and, to a lesser extent, vegetable oil. Extra-FSU meal imports are predominately soymeal, while intra-FSU trade consists of cottonseed meal, largely from **Uzbekistan** and **Turkmenistan**, the FSU's primary cotton producers. While the sunflower producing countries crush sunflower seed for meal, these regions, **Russia, Ukraine**, and to a lesser extent **Moldova**, have sizable livestock sectors and use meal for domestic livestock feed.

U.S. Holds Large Market Share of Extra-FSU Oilseed Imports

Despite lower FSU oilseed demand during the last 2 years, the United States remains the primary exporter of oilseeds and oilseed products to the FSU (figure 34). The U.S. market share is large for several reasons: the provision of credit guarantees and other assistance programs, export enhancement subsidies for vegetable oils (soybean and sunflower), and consistent supply during the marketing year. These factors have allowed the United States to substantially increase and maintain its market share, which had fluctuated greatly during the 1970's and early 1980's. Other suppliers of oilseeds and oilseed products to the FSU include China (soybeans), Argentina (soybeans and meal), Brazil (soybeans and meal), and the EU (soymeal).

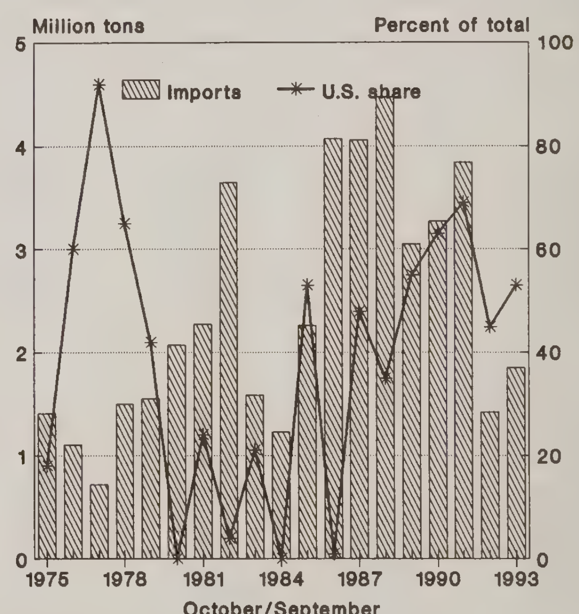
However, exports from these others suppliers, with the exception of the EU, have declined in recent years because of their inability to finance sales without credit guarantees. The EU has provided the FSU with credits to purchase agricultural commodities, however, most of the credits were for grain, not meal. Countries unable to provide financial assistance are turning to barter and debt swap deals in order to maintain sales. For example, in 1993 Brazil and **Russia** reportedly signed a 5-year, $2-billion trade agreement that includes the export of Brazilian consumer durables, including soy products, in exchange for Russian industrial goods and raw materials. India, which is not a traditional exporter to the region, is expected to sell 100,000-150,000 tons of soymeal to Russia in repayment of its debt, while Malaysia will reportedly use palm oil as partial payment for purchases of Russian military aircraft.

Table 59--FSU vegetable oil exports [1]

Country	1987	1988	1989	1990 [2]	1991 [2]	1992 [2]
			1,000 tons			
Russian Fed.	-409.7	-390.4	-375.0	-534.7	-299.7	-92.0
Ukraine	145.0	143.1	200.1	471.8	213.2	93.2
Belarus	-45.1	-24.1	-39.6	-83.5	na	-38.1
Moldova	51.2	56.2	61.1	76.6	41.3	4.3
Kazakhstan	1.2	-14.6	-13.1	-37.1	-3.0	-1.0
Uzbekistan	77.3	165.0	134.6	139.0	na	18.2
Kyrgyzstan	-20.4	-17.0	-23.9	-24.8	na	-5.7
Tajikistan	3.7	7.3	-3.8	-16.9	na	-1.4
Turkmenistan	36.0	82.3	82.1	76.2	na	30.7
Armenia	-8.6	-5.9	-16.7	-5.2	na	-4.2
Azerbaijan	0.7	2.0	-4.0	7.5	na	-0.3
Georgia	-16.3	-21.3	-22.9	-27.6	na	-0.0
Lithuania	-15.9	-15.8	-18.9	0.0	na	-0.3
Latvia	-11.4	-7.0	-8.4	-15.2	-9.5	-2.8
Estonia	-14.9	-9.0	-6.1	-10.5	na	-0.6

na = Not available.
[1] Includes intra- and extra-trade. Negative exports imply net imports.
[2] Intra-trade only.
Sources: Statkom SNG; Goskomstat SSSR.

Figure 34
U.S. Share of Extra-FSU Soybean and Meal Imports



Estimates, meal equiv.
Source: USDA.

To date, fiscal 1994 allocations of U.S. GSM-102 credit guarantees for FSU purchases of oilseeds and oilseed products are lower than in previous years. The primary reasons for the decrease are the ineligibility of most of the FSU countries to directly receive GSM-102 credits and **Russia's** continued nonparticipation in the program. However, fiscal 1994 U.S. export assistance for FSU purchases of oilseeds and products (meal and oil) extended to date accounts for 35 percent of total allocations for the FSU, the highest share since fiscal 1991 when the first allocations were made. To a some extent, the increase reflects a growing emphasis in the FSU on improving feed rations and increasing livestock productivity. Since fiscal 1992, **Russia, Ukraine, Kazakhstan, Belarus, Tajikistan, Lithuania, Latvia, Armenia,** and **Georgia** have directly received U.S. soybeans and soybean meal through export assistance or donation programs.

Since fiscal 1993, U.S. vegetable oil exports (primarily soybean oil) to the FSU have been financed primarily through concessional loans and donations. However, for commercial sales, USDA has offered sales under the Export Enhancement Program for FSU soybean oil imports and Sunflowerseed Oil Assistance Program (SOAP) invitations since fiscal 1992 (table 60). While no EEP or SOAP bonuses have been awarded since 1992, the potential for resuming commercial exports of U.S. vegetable oil exists, as deficit regions with the capability to earn foreign exchange could begin to import directly without going through central authorities. For example, there has been noticeable growth in U.S. corn oil exports to the FSU, which are likely being sold through private channels. Increases in real income, expected to occur in the next 3-5 years if economic reforms progress, could also lead to higher vegetable oil consumption and potentially increase import demand.

Table 60--EEP and SOAP vegetable oil allocations and sales, FSU

	Fiscal year	Total program	Total sales	Avg. bonus	Balance [1]
		Metric tons			
EEP [2]	1992	230,000	86,310	$62.15	0
	1993	150,000	0	--	0
	1994	100,000	0	--	100,000
SOAP	1992	80,000	55,000	$96.36	0
	1993	80,000	0	--	0
	1994	40,000	0	--	40,000

-- = Not applicable.
[1] Balance was terminated upon announcement of new program.
[2] All EEP sales were of soybean oil.
Source: USDA (April 1994).

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FSU Sugar Sector Reacts To Market Forces

Sugarbeet production in the FSU increased in 1993/94 due to favorable yield and weather developments in Ukraine. But, the squeeze on sugarbeet producers continues in the FSU countries as input prices continue to increase faster than sugarbeet prices. Aided by State subsidies, sugarbeet production continued to be profitable in 1993 in Russia, but profitability fell. Also, the technologically backward sugar refining sector is in financial crisis. Per capita sugar consumption in FSU countries remains 15-20 percent below that of the late 1980's. It is expected to stabilize near current levels for the next few years. Policy flip-flops and uncertainty continue. Russia imposed a 20- percent tariff on imported refined sugar in March 1994 to protect its domestic refining industry. A month later, however, the government postponed the tariff. As the role of market forces and price signals increases, inefficiencies in the sugar sector may be reduced, improving the outlook of the sector in the next century. [Peter S. Liapis and Yuri Markish]

In 1993/94 (September/August), sugarbeet production in the **FSU** was about 65 million tons, about 23 percent of world production. **Ukraine** and **Russia** are the largest sugarbeet producers in the FSU and rank among the five largest producers in the world. In 1993/94, **Ukraine**, with production of 33.6 million tons, and **Russia**, with 25.5 million tons, accounted for about 92 percent of total FSU sugarbeet output (table 61).

Although sugarbeet output improved in 1993/94, the economic and political changes accompanying the breakup of the FSU continue to negatively affect sugarbeet production. Preliminary indications are that FSU sugarbeet output in 1994/95 may decline slightly from 1993/94.

Output in 1993/94, although above 1992/93, was 33 percent below peak output in 1989/90. The largest declines in sugarbeet production have occurred in **Ukraine** and **Russia**. Sugarbeet production in 1993/94 was 32 percent below 1989/90 output in **Russia**, and 35 percent below in **Ukraine**.

The fall in production during the 1990's was a result of both a decline in area planted and lower yields. In **Russia**, sugarbeet area in 1993/94 was 10 percent below its 1989/90 peak, while area was 9 percent below 1989/90 levels in **Ukraine**. During the same period, sugarbeet yields fell 24 percent in **Russia** and 29 percent in **Ukraine** (figure 35). Prices for inputs are increasing faster than sugarbeet procurement prices, which is forcing growers to scale back area by removing marginal land from sugarbeet production. And, even though fertilizer application rates rebounded in **Russia** in 1993, they are still lower than during the late 1980's, as are yields. Sugarbeet yields in **Russia** have fallen relatively more than yields of other crops as a result of lower fertilizer application rates of recent years.

The move toward a market economy and the breakup of links among the countries of the **FSU** undoubtedly contributed to the decline in sugarbeet production. In **Russia**, growers are not receiving timely payment for output delivered to State procurement, resulting in capital shortages. Consequently, growers are reducing their utilization of inputs such as fertilizers and pesticides. Fertilizer applications have dropped from a high of 420-440 kilograms per hectare in the late 1980's to 360 kilograms per hectare in 1993. High-priced fuel and aging machinery are also contributing to the drop in production and to increasingly poor agronomic practices. Improper crop rotation has increased noticeably.

Sugarbeet yields in the FSU have been consistently lower than yields in other sugarbeet producing countries (figure 36), even though fertilization rates were similar. Unbalanced formulas and inappropriate application schedules in the FSU have resulted in sugarbeet output per unit of fertilizer that is below other major countries. Thus, even though fertilizer applications increased twice as fast during the 1980's, yield response was muted. Yield response to reduced fertilizer applications has been symmetric. Thus, even though fertilizer applications have declined in recent years, yields have not declined as much as the fall in fertilizer rates would suggest. Favorable weather in recent years also has buttressed yields.

Fertilizer quality and application know-how appear to be more of a problem than the application level in **Russian** sugarbeet production. For example, Food and Agriculture Organization data on fertilizer use on specific crops suggests that in 1990, Russia was among the world's largest users of fertilizer on sugarbeets. At 460 kilograms per hectare in 1990, Russia applied only 25 kilograms per hectare less than France. However, yields in Russia were a little over 21 tons per hectare, whereas yields in France were above 60 tons. A similar story is evidenced when comparing yields and fertilizer application rates between **Russia** and the United States. In 1990, the fertilizer application rate on U.S. sugarbeets was 194 kilograms per hectare, less than one-half the fertilizer application rate in Russia, while the U.S. yield, at 45 tons per hectare, was more than double Russian yields.

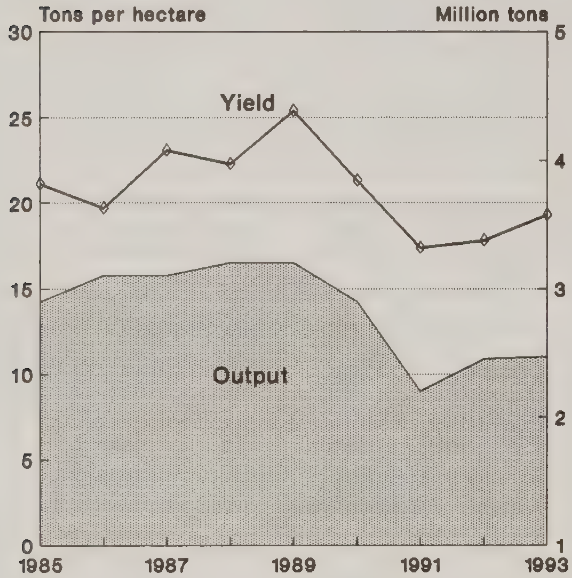
Lack of high-yielding seed varieties is also contributing to low yields. Beet seeds are rarely treated prior to storage and consequently have disease problems even before planting. The beet sugar industry has not developed locally adaptable hybrid seed varieties for growers. Shortages of high-yielding, genetically improved varieties, will continue in the foresee-

Table 61--Sugar balances, selected FSU countries, 1991/92-1993/94 [1]

Country	Marketing year	Area	Sugarbeet yield	Output	Beginning stocks	Sugar prod. from beets	Total imports (raw & white)	Total domestic sugar supply	Total exports	Total domestic consump-tion	Ending stocks
		1,000 hectares	*Tons/ha*	*1,000 tons*							
Russian Fed.											
	1991/92	1,399	17.4	24,280	1,045	2,200	3,850	7,095	100	5,600	1,395
	1992/93	1,439	17.8	25,550	1,395	2,450	3,400	7,245	80	6,000	1,165
	1993/94	1,320	19.3	25,500	1,165	2,470	3,595	7,230	80	6,100	1,050
Ukraine											
	1991/92	1,558	23.2	36,168	522	4,178	325	5,025	1,500	2,600	925
	1992/93	1,483	19.4	28,800	925	3,830	400	5,155	1,980	2,400	775
	1993/94	1,500	22.4	33,600	775	4,150	200	5,125	2,100	2,300	725
Belarus											
	1991/92	45	25.5	1,147	90	130	300	520	0	450	70
	1992/93	51	22.0	1,120	70	110	330	510	0	440	70
	1993/94	55	28.4	1,560	70	130	280	480	0	420	60
Moldova											
	1991/92	80	28.3	2,262	35	222	0	257	0	231	26
	1992/93	75	26.7	2,000	26	200	0	226	0	210	16
	1993/94	74	27.0	2,000	16	200	0	216	0	200	16
Kazakhstan											
	1991/92	45	16.1	726	185	70	450	705	0	560	145
	1992/93	68	17.2	1,170	145	137	300	582	0	530	52
	1993/94	65	13.8	900	52	107	500	659	0	550	109
Kyrgyzstan											
	1991/92	1	10.0	10	26	1	340	367	170	174	23
	1992/93	6	22.5	135	23	13	128	164	0	145	19
	1993/94	12	17.3	207	19	20	120	159	0	140	19
Lithuania											
	1991/92	27	30.0	811	29	90	12	131	0	110	21
	1992/93	30	24.0	720	21	60	47	128	0	107	21
	1993/94	30	26.3	790	21	75	35	131	0	110	21
Latvia											
	1991/92	15	25.2	378	29	35	78	142	0	121	21
	1992/93	21	16.7	350	21	35	88	144	0	137	7
	1993/94	15	23.3	350	7	35	85	127	0	115	12
Other											
	1991/92	0	0	0	227	0	1,269	1,496	0	1,320	176
	1992/93	0	0	0	176	0	1,286	1,462	0	1,262	200
	1993/94	0	0	0	201	0	1,128	1,328	0	1,128	200
Total FSU											
	1991/92	3,170	20.8	65,782	2,188	6,926	6,624	15,738	1,770	11,166	2,802
	1992/93	3,173	18.9	59,845	2,802	6,835	5,979	15,616	2,060	11,231	2,325
	1993/94	3,071	21.1	64,907	2,325	7,187	5,943	15,455	2,180	11,063	2,212

[1] Estimates, 1993/94 preliminary. All data are in raw value, except area, yield and output for sugarbeets.
Sourse: USDA.

Figure 35
Sugarbeet Yield and Beet Sugar Output, Russian Federation



Beet sugar output is in raw value.
1993 estimated.
Sources: USDA; Goskomstat Rossii.

able future. Prior to 1991, there were several farms and plant breeding enterprises in **Russia** producing improved beet seeds, but today only a handful are engaged in producing improved seeds. Research and development of yield-improving technologies is also declining.

Input prices have increased substantially more than output prices. Sugarbeet producers are not an exception to this phenomenon. For example, between November 1992 and September 1993, State procurement prices for sugarbeets increased eight times in **Russia**, from 2,500 rubles ($3.26) per ton to 20,000 rubles ($26.11) per ton. In **Russia**, the sugarbeet price index increased 858 percent from 1992 to 1993 and stood at 35,560 (1986 = 100). The price index for all inputs, on the other hand, increased 2,150 percent and stood at 49,500.

A major contributor to the overall input-price increase is fuel. Between 1992 and 1993, the price index for fuels increased 13,760 percent, to 57,710. Although, the fertilizer price index increased somewhat less than the price index for all inputs, the rate of increase was more than the price increase for sugarbeets. Input and output prices exhibited similar patterns in the other FSU countries. Consequently, input demand has fallen substantially. High fuel costs and farmers' difficulties in paying for fuel have resulted in reduced fuel supplies on farms and delays in harvesting the sugarbeet crop. In addition, disruptions in inter-republic links are causing problems with supply of machinery, availability of spare parts, and so forth. For example, the only beet harvester machine factory in the FSU is located in **Ukraine**.

Furthermore, farm machinery that is available is not as efficient as machinery in Western Europe, further hampering harvest. During harvest, Ukrainian-made harvesters shear up to 40 percent of the crop, compared to French-manufactured harvesters that damage no more than 2 percent. Farm labor is also a problem. Sugarbeet production is relatively labor intensive and the current migration of labor to Russian cities is negatively affecting production.

The combination of the factors mentioned above have resulted in a tremendous jump in production costs. In Russia, the cost of producing a kilogram of sugarbeets was .077 rubles in 1991, 1.02 rubles in 1992, and 12 rubles in 1993. In real terms, this represents an increase of over 12,000 percent. Nevertheless, because producers were partly subsidized for input purchases, profitability of sugarbeet production rebounded in 1992. Profits (as defined in Russia as returns over variable expenses) for sugarbeet producers were negative in 1991, whereas profits were 95 percent in 1992. The terms of trade worsened for sugarbeet producers in 1993 and State subsidies were reduced. Sugarbeet production remained profitable in 1993, but profitability fell to 59 percent. Preliminary indications are that the terms-of-trade may continue to deteriorate for Russian and Ukrainian sugarbeet producers, forcing farms to retire more marginal land. Planted area and output could therefore fall slightly in 1994/95.

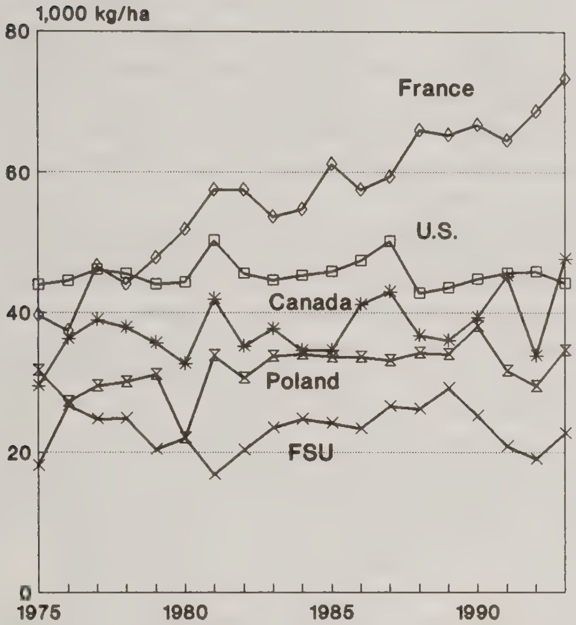
Sugar Refining Characterized by Poor Equipment and High Cost

White sugar is produced in the FSU countries by processing sugarbeets and by refining imported raw cane sugar. Beets are produced domestically, while raw cane sugar was mostly imported from Cuba in the past. In 1993/94, total sugar production in the FSU totaled an estimated 9.4 million tons (raw value), a 36-percent drop from its peak in 1987/88. About 77 percent (7.2 million tons raw value) is sugar produced from beets. In 1994/95 sugar from beets is expected to decline modestly. Processing of cane sugar has declined even more dramatically during this time. Between 1987/88 and 1993/94, cane sugar production declined from 5.1 million tons to a little over 2 million tons (raw value), a 57-percent drop. Cane sugar production is expected to remain at current levels during 1994/95.

Ukraine is among the world's largest producers of beet sugar. Average-annual beet sugar output between 1986/87 and 1990/91 was 5.0 million tons (white) in **Ukraine,** 4.2 million in France, 4.1 million in Germany, and 3.2 million in the United States. Sugar production in **Russia** and **Ukraine** has fallen substantially in the 1990's however. Beet sugar production in **Russia** in 1993/94 is estimated to be 2.5 million tons (raw), a drop of 20 percent from 1987/88. Beet sugar production in **Ukraine** is estimated to be about 4.2 million tons, 27 percent below 1987/88. Production of sugar from imported cane sugar has not changed very much in **Russia** during this time, but has fallen 95 percent (to 130,000 tons) in **Ukraine**. Refineries in **Ukraine** used to receive the bulk of bartered Cuban cane sugar for processing. This practice has been reduced considerably and currency constraints have reduced imports from other sources.

Several factors are working to reduce output while increasing costs in the sugar production industry in the FSU. Sugar from beet production is hampered by low yields and low quality.

Figure 36
Sugarbeet Yield, FSU and Selected Countries



Source: FAO Agrostat.

Not only is a hectare of land producing less beets than in many other countries, as shown in figure 36, less sugar is being extracted from the beets. For example during the last 6 years, sugar production from beets in **Russia** and **Ukraine** averaged 1.9 tons and 3 tons of sugar (raw value) per hectare, compared to 4.5 for Poland, 9.9 for the Netherlands, 6.4 for the United States, and a world average of 4.6. Another factor leading to declines in sugar recovery from beets is the long distances covered and poor handling during transport. Because of low processing capacity in the major production areas of the Black and Non-Black soil zones and the Volga region, beets are shipped over great distances for processing, increasing costs and decreasing sugar content.

Not only is the production and transport of sugarbeets inefficient, sugar refineries in FSU countries are also inefficient by Western standards. Only about 62-65 percent of beet sucrose content is extracted in sugar mills, compared to 82-85 percent in EU and the United States. In the West, extraction rates are being pushed higher by new technology for the desugaring of molasses, which captures a larger share of sucrose that was previously lost to molasses. According to some estimates, poor technologies (aging and obsolete equipment, low industrial capacity), along with poor storage and handling, are responsible for a loss rate of up to 30 percent in sugar production. Also, the lack of profit incentive in the past undoubtedly contributed to waste.

More than 60 percent of total FSU beet sugar is produced by 195 **Ukrainian** beet sugar factories. The majority of these plants are small by Western standards; 120 have slicing capacity below 2,500 tons of beets per day. Not only are the majority of the mills small, most utilize primitive technologies; 140 mills were built before 1917. Recently, fuel and spare-parts shortages have aggravated the situation and contributed to reduced output.

The **Russian** sugar processing industry of 95 factories is the weakest link in its sugar sector. As is the case in **Ukraine**, the mills are old. Most were built in the first half of the 20th century, operating with obsolete equipment. Slicing capacity is low, averaging around 2,800 tons of beets per day, compared to 4,700 in the United States and 7,000 in the EU. Sugarbeet storage technology is poor, leading to very low recoveries late in the processing season. For example, the recovery rate in **Russia** during September is around 10 percent, while in February it declines to around 6.8 percent. Fuel and spare-parts shortages are contributing to production declines and increasing production costs. Availability of spare parts is more problematic for **Russian** refineries because they must be obtained from outside sources.

The sugar refining sector in **Russia** and **Ukraine**, because of its aging capital stock and small factories, requires new inflows of capital in order to become competitive with major exporters. Privatization and joint ventures may enable the sector over the long term to modernize and update the capital stock and adopt new technologies that will reduce waste. Both **Russia** and **Ukraine** have the land base to be major sugarbeet producers. As the inefficiencies of old production methods are eliminated and yields improve to those of other major producing countries, the sugarbeet processing sector would be expected to have much larger supplies. Coupled with modernization of the refining sector, Ukraine could evolve into a significant exporter and **Russia** could provide more of its own sugar needs, especially as developed countries reduce support payments to their sugar producers. These developments will require substantial investments and will not take place over the medium term. However, some firms are taking the first steps by vertically integrating. In **Russia**, a private firm (Sugar Financial Company, Voronezh) has successfully started operations that range from beet growing to sugar distribution. Among its founders are the French trading house, Sucres et Denrees, as well as banks, and related firms.

Consumption Increases Slightly in Russia

Falling real incomes and rising prices have contributed to falling per capita consumption of sugar in most of the FSU countries between 1987/88 and 1993/94. In the FSU, per capita consumption declined significantly during this period. Consumption declined 26 percent in **Russia** and 22 percent in **Ukraine** from 1987/88 to 1993/94. The fall in per capita consumption is especially noticeable in the **Central Asian** republics, where consumption was generally 40 percent below the European FSU countries. But the rate of decline appears to be slowing and, in 1994/95, per capita consumption in the FSU could stabilize. In the last 2 years, **Ukraine** re-established price controls and the State subsidized sugar prices. These policies have temporarily stabilized sugar consumption. In **Russia**, per capita consumption increased slightly in 1993/94 compared to 1992/93 as a result of a slight increase in real income and temporarily lower sugar prices. However, if price controls and subsidies are eliminated in **Ukraine** and, if the 20-percent import duty recently introduced in **Russia**

significantly increases prices, consumption in these two large countries may fall further.

Per capita consumption in **Russia** is comparable to those in France and Germany, but higher than in the United States. In the United States however, large quantities of corn sweeteners are consumed in addition to sugar. Given that per capita consumption is relatively high in **Russia** compared to real income, future per capita consumption is not expected to rebound to past amounts. Even as incomes rise and real prices stabilize, demand for sugar should remain stable at current levels, as suggested by the data from the more mature economies.

Shifting Border Policies Lead To Confusion in Russian Sugar Market

In 1993/94 FSU sugar imports (including intra-FSU trade) are forecast at 5.9 million tons (raw value), compared to 10.3 million in 1987/88. Most of the decline occurred in trade among the FSU countries. Extra-FSU imports will have declined almost 20 percent, to 4.1 million tons (raw), while intra-FSU imports are expected to decline 72 percent, to 1.5 million tons.

The composition of sugar imports is changing in the FSU. In the past, about 75 percent of sugar imports came from Cuba, mainly for geopolitical considerations, in exchange for oil, food, and industrial products. The imports came in the form of unrefined cane sugar, which was refined domestically. Import subsidies on unrefined cane sugar to processors helped make it competitive with domestic beet sugar, while imports of refined sugar were almost nil. In 1987/88, only 22,000 tons (raw value) of refined sugar were imported from sources outside the FSU. Reductions of import subsidies by many of the FSU countries and the opening of these markets to the world is changing competitive conditions in the sugar market. Relative prices have shifted so that extra-FSU imports of refined sugar have increased substantially. In 1992/93, refined sugar imports from countries outside the FSU increased 87 times to 1.9 million tons (raw value). The EU, China, and Brazil are now competing to supply refined sugar to the FSU market. The trend is most pronounced in **Russia**.

Even though **Russia** is a large sugar producer, domestic production is insufficient for meeting domestic consumption needs. As a result, Russia is also a major importer. Imports are expected to contribute up to 60 percent of Russia's total sugar consumption in 1993/94. In the past, a large share of Russian sugar imports arrived from other FSU countries. More recently however, **Russian** imports have shifted more to extra-FSU sources. Similarly, trade flows for **Ukraine** have changed. Sugar exports from **Ukraine** to the other FSU countries fell 70 percent between 1987/88 and 1993/94.

Policy changes in **Russia** last year have significantly altered the import market. In May 1993, subsidies to import raw sugar, which stood at 40 percent, were eliminated. This is expected to reduce imports of raw cane sugar for further processing, while making imports of refined sugar more competitive. In addition, Prodintorg, the quasi-governmental importing company, announced that it would shift away from government orders for millions of tons to much smaller contracts. The Russian Government announced in October 1993 that exports of cane or beet sugar would be subject to an export tax of almost $70 per ton.

Cuba continues to be the largest supplier to **Russia**, but imports from Cuba are declining. Furthermore, with the move away from direct government-to-government purchases, the importance of Cuba as a supplier to Russia will likely diminish. However, for 1993/94, an intergovernmental agreement states that Russia will provide 2.5 million tons of crude oil to Cuba in exchange for 1 million tons of unrefined sugar cane. The terms of the agreement illustrate that Russia continues to subsidize Cuban sugar. At January 1994 prices for raw sugar and crude oil, the terms suggest that **Russia** will provide Cuba with about a $31-per-ton subsidy for its cane sugar. Many Russian traders doubt that the deal will actually be consummated. The deal's terms were not very clear and Russian refineries would have difficulties handling 1 million tons before October-November, when they switch to refining domestic beet sugar. Those who doubt that the deal will be fulfilled may be right. Russia planned to import 1.5 million tons in 1992/93, but only imported 905,000 tons.

In order to protect the domestic sugar industry, **Russia** introduced a 20-percent *ad valorem* duty on refined sugar on March 15, 1994. The imposition of import tariffs has been discussed for some time. In anticipation, many traders imported refined sugar during the last 6 months of 1993, speculating that they could turn quick profits after the tariff was imposed. However, the imposition of the tariff was delayed, causing a temporary abundance of sugar in the market. Early in 1994, there was excess sugar supply in **Russia** as traders flooded the market in an attempt to reduce stocks because of inadequate storage facilities and high carrying costs. Consequently, spot prices have been declining. In anticipation of the 20-percent import duty, sugar prices continued to drop in **Russia**. During the last week of March, sugar prices fell from 460,000 rubles per ton to between 430,000 to 450,000 rubles per ton. In late April 1994, the Russian Government postponed (until July) the new tariff until further review was completed, adding to the confusion of sugar traders.

The current excess supply is expected to be short lived. Traders are preparing contingency plans to switch back to importing raw sugar in case it is at a competitive advantage after the duty on refined sugar. It is not yet known whether the 20-percent import duty on refined sugar will be sufficient to cover the high costs of refining imported raw cane sugar. But, the **Russian** confectionery industry is already complaining that the import duty will cause prices in domestically produced confectionery to increase 30-35 percent. The 20-percent import duty may help the **Ukrainian** sugar industry, which under a CIS free trade agreement can export duty free.

Another possible policy change for **Russia** is the planned elimination of procurement prices for sugarbeets starting in 1994. **Russia** and **Ukraine** each have ambitious plans for modernizing their sugar industries, but at this time, neither country has the resources to carry out the plans. Sugar production in the FSU is expected to remain at current levels in the short-to-medium term.

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Central Asian Extra-FSU Exports Rise as Russian Cotton Use Declines

Central Asian cotton production increased in 1993/94 following 4 consecutive years of decline. Increased planting intentions reported for 1994/95 suggest a larger crop is possible, with good weather. However, problems with input affordability and availability, particularly for pesticides, could limit production gains. Increased international demand and high external prices, compared to internal FSU prices, led to increased extra-FSU exports of Central Asian cotton. The FSU market for textiles is expected to remain depressed, leaving more cotton fiber available for export to world markets. [Yuri Markish and Robert B. Koopman]

Cotton Production Rebounds, Textile Market Continues Decline

Central Asian cotton production increased in 1993/94 (August/July) following 4 consecutive years of decline. The cotton economies of the region appear to be increasingly responding and adjusting to world market conditions. Reports indicate increased planting intentions for the 1994/95 crop and, with normal weather, could result in increased production. Thus far, however, poor weather conditions in April slowed planting. World prices are a third higher than a year ago, providing hard-currency-starved Central Asian republics with even greater economic incentives to increase production and exports. However, problems with input affordability and availability, particularly for pesticides, could limit production gains.

Depressed demand for cotton in the European FSU countries has not caused the Central Asian countries much difficulty, as they have shifted to extra-FSU exports. Increased international demand and high external prices, compared to internal FSU prices, led to larger extra-FSU exports of Central Asian cotton. The textile industries of **Russia** and other FSU cotton importing countries (**Ukraine** and the **Baltics**) are operating at much less than capacity, due mainly to decreased demand for their products and relatively high production costs given the quality of their product.

Central Asian cotton production rebounded in 1993/94, responding to improved production incentives, greater use of handpicking for harvesting, and favorable weather. The outlook for 1994/95 production suggests further increases in production, but remaining well below the 1988/89 peak for seed cotton production (8.7 million tons). Outlook for production and extra-FSU trade looks strong because world prices may remain relatively high, especially compared to Central Asian State procurement prices. The Central Asian countries are expected to continue to rely on cotton exports for hard currency and barter earnings and therefore have incentives to increase production for export. Reinforcing the extra-FSU trade links is weak demand for FSU-produced textile products in the European FSU countries.

Traditional economic links between the cotton-growing economies and the rest of the FSU cotton-importing countries have been severely disrupted. The disruption results from a FSU-wide economic downturn and, in some cases, political turmoil. The resulting switch to world markets has been beneficial to the Central Asian economies in terms of significant foreign currency earnings and inflows of bartered goods and foreign investment for their economic transition.

Demand for Domestically Produced Textiles Declines

The past 3 years of economic reform and disruption in the FSU countries resulted in significant falls in real income, substantial changes in relative prices, and increased imports of higher-quality, non-FSU consumer goods. These factors have all led to a significant drop in consumer demand for traditional FSU textile products. The decline in demand for FSU-produced textiles has had a significant negative impact on the FSU European countries with large textile industries. For example, the textile industry of **Russia**, which has employed more than 1 million people and formerly generated tax revenues amounting to one-quarter of the former Soviet Union's national budget, now finds itself in steep decline. Because of soft demand and increased supplies of higher-

quality, competitively priced imports, the production of cotton fabrics and finished products in 1993 was down about 70 percent from 1990. In other FSU cotton-importing countries the situation is reportedly even worse.

Cotton Production and Quality Rebound in Response to Greater Incentives

Yield increases in 1993/94 more than offset a slight area decline, increasing seed-cotton production despite declining input use (table 62). A combination of higher world and domestic procurement prices, and more flexible government policy helped stimulate attention to improved quality. The governments of **Uzbekistan** and **Turkmenistan** urged farmers to increase yields, particularly through the reduction of waste and the expansion of hand picking, which raises quality and production. Farmers in **Uzbekistan** are now allowed to sell 20 percent of their crops at free-market prices, while it is mandatory to sell 80 percent to the State. Cotton cannot be sold without a license from the State, thus keeping cotton marketing under State control. State procurement prices for Central Asian cotton, while rising, are still quite low by world standards.

In 1993, FSU cotton sold on the world market for about $1,000 a ton, but was procured by the State from farms for between $250-$300 per ton. Still, the procurement price appears to be high enough to spur production and apparently more than covers the farm's costs of production. Strong world prices should allow Central Asian governments to pass on even greater incentives to cotton farmers, either through higher procurement prices or increased indirect subsidies. Production costs in Central Asia are well below costs in other cotton producing countries, and it appears that Central Asian governments earn substantial revenues and quantities of bartered goods from cotton exports because of a large spread between world market prices and internal procurement prices. Because of the profitability from exports, Central Asian governments have great incentives to maintain strict control over their cotton production.

Despite the apparently rising incentive to increase production and quality, Central Asian cotton producers still must economize on purchased industrial inputs, resulting in a significant decline in industrial input use from historical levels. Future input use will likely depend on how much government policies allow world market prices to reach producers. Continued low procurement prices will result in continued low industrial input use. Industrial farm input prices have increased faster than output prices. While data on input deliveries are not available, statements by Central Asian officials indicate that fuels, spare parts, and plant protectants (especially fungicides and pesticides) are too costly (given current very low State-set procurement prices) for farms to purchase in the quantities used historically. Of course the decline in input use reflects rational economic behavior for producers caught between freed and rising input prices, while the Central Asian governments continue to control output prices at well below world levels. Thus, Central Asian farmers have resorted to more cost-efficient, if not technologically advanced, production methods. These include greater use of biological pest controls instead of chemical pesticides in **Uzbekistan**, and much greater use of hand-picking of cotton to reduce the need for fuels, defoliants, and spare parts needed to use cotton-picking combines.

Uzbekistan has the equipment required to machine-pick cotton, speeding up the harvest activity in order to avoid losses from frost or snow, but poor equipment design results in lower-quality cotton fiber. Hand-picking, however, not only reduces expensive input and environmentally damaging chemical use, it also utilizes a widely available, currently relatively inexpensive input, labor. Hand-picked cotton has the further advantage of being of much higher quality than machine-picked cotton. In **Uzbekistan**, hand-picking accounts for 40 percent of the harvest, while the share is higher in other Central Asian republics.

There is some concern that in the next few years the significant reduction in herbicide and pesticide use will result in excessive weed and insect infestation, which could reduce yields significantly. In past years, heavy use of purchased agro-chemicals on Central Asian cotton was criticized for its detrimental environmental impacts. Thus, despite the concern about future yields and the recent decrease in purchased agro-chemical use, the movement back to hand-picking is a positive development from the environmental perspective, but one that may not last. Heavy pesticide and herbicide use on cotton is typical in most developed cotton- producing countries, suggesting that intensive input use is profitable at world prices for both cotton and inputs (excluding, for the most part, calculations of environmental and human health costs).

Currently, Central Asian governments receive the world price for cotton, but Central Asian farmers do not. If, however, world cotton prices are eventually passed on to Central Asian farmers, demand for industrial inputs would likely rise once again, especially as input availability and distribution systems improve, as has happened in many of the transition economies in Central and Eastern Europe.

Production Performance Mixed in Central Asian Countries

Cotton area declined slightly in 1993/94 in **Uzbekistan, Tajikistan**, and **Kyrgyzstan**. However in all three countries yields increased slightly. The overall decline of the cotton-growing area in the FSU that began in 1977/78, continued in 1993/94, with the total area under cotton cultivation down 3 percent from 1992/93 (figure 37). However, Central Asian yields increased by 5 percent.

Seed-cotton production in the FSU during 1993/94 reached over 6.6 million tons, a 2-percent increase from 1992/93. In **Uzbekistan**, the production upturn was over 3 percent, with 27 percent in **Tajikistan**, and 2 percent in **Turkmenistan**. In **Azerbaijan** and **Kazakhstan,** production has fallen off by 15 percent. FSU lint-cotton production was 2.1 million tons in 1993/94, about 3 percent more than in 1992/93. **Uzbekistan** accounted for nearly 1.4 million tons or about 65 percent of the total lint output.

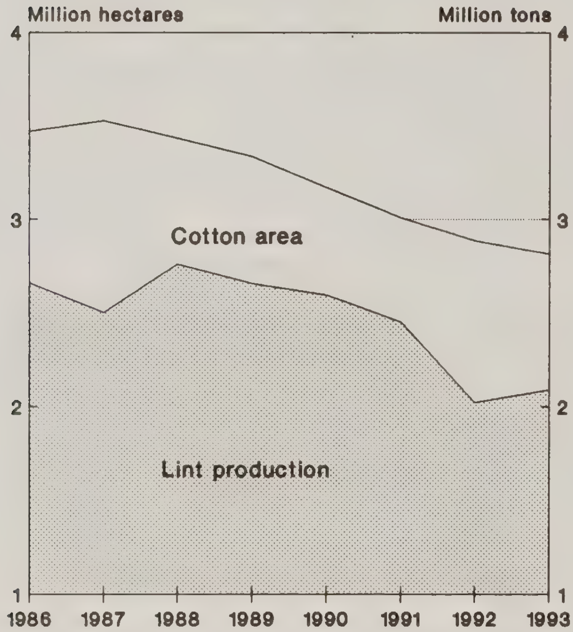
The near- to medium-term outlook is for Central Asian cotton production to increase moderately. Increased foreign cur-

Table 62--Cotton balances, selected FSU coutries, 1991/92-1993/94 [1]

Country Year	Beginning stocks	Area	Yield	Seed-cotton production	Ginning rate	Lint-cotton production	Lint-cotton imports from FSU	Lint-cotton imports from other	Total lint-cotton imports	Total lint-cotton supply	Lint-cotton exports to FSU	Lint-cotton exports to other	Total lint-cotton exports	Domestic lint consumption	Ending Stocks	Cotton cloth prod.
	Mil. tons	*Mil. ha*	*Tons/ha*	---	---	---	---	---	*Million tons*	---	---	---	---	---	*Mil. tons*	*Mil. m^2*
Russian Fed.																
1991/92	0.175	0	0	0	0	0	0.849	0	0.849	1.024	0	0	0	0.988	0.036	5.295
1992/93	0.036	0	0	0	0	0	0.511	0	0.511	0.547	0	0	0	0.504	0.043	3.292
1993/94	0.043	0	0	0	0	0	na	na	0.479	0.522	na	na	na	0.479	0.043	2.200
Ukraine																
1991/92	0.027	0	0	0	0	0	0.165	0	0.165	0.192	0	0	0	0.168	0.024	505
1992/93	0.024	0	0	0	0	0	0.076	0	0.076	0.100	0	0	0	0.087	0.013	467
1993/94	0.013	0	0	0	0	0	na	na	0.060	0.073	na	na	na	0.065	0.008	na
Kazakhstan																
1991/92	0.020	0.117	2.48	0.290	0.31	0.091	0.023	0	0.023	0.134	0.060	0.005	0.065	0.043	0.026	134
1992/93	0.026	0.110	2.24	0.246	0.31	0.076	0.011	0	0.011	0.113	0.045	0.020	0.065	0.038	0.010	na
1993/94	0.010	0.110	1.88	0.207	0.31	0.065	na	na	0.011	0.086	na	na	0.044	0.033	0.009	na
Uzbekistan																
1991/92	0.339	1.720	2.70	4.645	0.32	1.478	0.002	0	0.002	1.819	0.555	0.577	1.132	0.187	0.500	392
1992/93	0.500	1.667	2.48	4.128	0.32	1.306	0	0	0	1.806	0.368	0.829	1.197	0.207	0.402	na
1993/94	0.402	1.627	2.60	4.234	0.32	1.350	0	0	0	1.752	na	na	1.328	0.229	0.195	na
Kyrgyzstan																
1991/92	0.005	0.026	2.38	0.062	0.31	0.019	0.019	0	0.019	0.043	0.005	0	0.005	0.030	0.008	105
1992/93	0.008	0.022	2.36	0.052	0.31	0.016	0.017	0	0.017	0.041	0.009	0	0.009	0.028	0.004	na
1993/94	0.004	0.019	2.63	0.050	0.30	0.015	na	na	0.020	0.039	na	na	0.008	0.027	0.004	na
Tajikistan																
1991/92	0.051	0.298	2.74	0.816	0.31	0.255	0	0	0	0.306	0.194	0.024	0.218	0.038	0.050	102
1992/93	0.050	0.286	1.43	0.410	0.31	0.127	0	0	0	0.177	0.116	0.004	0.120	0.027	0.030	na
1993/94	0.030	0.260	2.00	0.520	0.31	0.163	0	0	0	0.193	na	na	0.120	0.022	0.051	na
Turkmenistan																
1991/92	0.067	0.604	2.36	1.428	0.30	0.429	0	0	0	0.496	0.265	0.100	0.365	0.015	0.116	28
1992/93	0.116	0.570	2.28	1.301	0.30	0.390	0	0	0	0.506	0.142	0.250	0.392	0.017	0.097	na
1993/94	0.097	0.574	2.32	1.330	0.30	0.403	0	0	0	0.500	na	na	0.435	0.022	0.043	na
Azerbaijan																
1991/92	0.036	0.245	2.20	0.539	0.33	0.177	0.002	0	0.002	0.215	0.108	0.012	0.120	0.044	0.051	95
1992/93	0.051	0.233	1.42	0.330	0.33	0.109	0.002	0	0.002	0.162	0.047	0.040	0.087	0.035	0.040	na
1993/94	0.040	0.225	1.25	0.282	0.33	0.094	na	na	0.001	0.135	na	na	0.080	0.026	0.029	na
Others																
1991/92	0.022	0	0	0	0	0	0.127	0.011	0.138	0.160	0	0	0	na	na	642
1992/93	0.019	0	0	0	0	0	0.110	0.003	0.113	0.132	0	0	0	0.118	0.014	na
1993/94	0.014	0	0	0	0	0	na	na	0.112	0.126	na	na	na	0.111	0.015	na
Total FSU																
1991/92	0.742	3.010	2.58	7.780	0.31	2.449	1.187	0.011	1.198	4.389	1.187	0.718	1.905	1.654	0.830	7.298
1992/93	0.830	2.888	2.24	6.467	0.31	2.024	0.727	0.003	0.730	3.584	0.727	1.143	1.870	1.061	0.653	na
1993/94	0.653	2.815	2.35	6.623	0.31	2.090	0.661	0.022	0.683	3.426	0.661	1.354	2.015	1.014	0.397	na

na = Not available. [1] Estimates,1993/94 preliminary.
Sources: USDA, Statkom SNG, Goskomstat Rossii, Minstat Ukrainy.

Figure 37
FSU Cotton Area and Production



1993 estimated.
Source: Statkom SNG.

rency earnings are expected to allow Central Asian governments to increase imports of modern cotton-production inputs and, at the same time, needed food imports for the population. The leading cotton-growing countries of **Uzbekistan, Turkmenistan**, and **Tajikistan** have very similar policies for their cotton sectors--State-set procurement prices lower than world prices and increased emphasis on hand-picking for higher quality. Future cotton prices are expected to increasingly reflect world prices over the next few years, providing greater stimulus to production. Given past environmental problems, and an increasing emphasis on the future stream of earnings from cotton, more rational land use is expected to begin, with slight area declines as particularly degraded land is removed from production. Yield growth is expected to offset this area decline, through a combination of: more hand-picking; higher-quality, more environmentally sound, and better managed input use; and eventually, the use of higher-quality cotton-picking machinery.

Though some intentions to increase grain area at the expense of cotton area have been announced, it is unlikely to develop as a significant factor affecting production. Grain production in the Central Asian lowlands, semi-deserts, and deserts would require expensive use of salty irrigation water, which is unlikely to be practical or profitable. Cotton will likely remain the most cost-effective crop in Central Asia.

On the demand side, Central Asian cotton will likely remain competitively priced on world markets. Current market prices are strong, as production in India, Pakistan, and China is down this year. Still, given the wide gap between State-set procurement prices and world prices, even a weaker world market in the future would not have much effect on Central Asian competitiveness. Further, the textile industry in European FSU countries is likely to experience some recovery over the next 5 years, increasing intra-FSU trade in cotton.

Cotton Trade Prospects Look Good

Total cotton exports of Central Asian countries in 1993/94 are estimated at 2 million tons of fiber, of which **Uzbekistan's** share is 66 percent. Exports in 1994/95 are expected to remain strong, depending on competing supplies in other countries. Exports, however, are expected to remain well below the recent high of 2.4 million tons in 1988/89.

In 1993/94, Central Asian exports to the FSU countries declined an estimated 44 percent (from 1.2 million tons to 660,000) from 1991/92, while exports to extra-FSU markets went up 86 percent. **Russia's** imports, mainly from **Uzbekistan**, equalled 479,000 tons, down 44 percent from 1991/92. A further decline in exports to **Russia** and the **Ukraine** may occur in 1994/95, as their textile industries cut textile output back further. Developments that could affect this outlook would be changes in **Russian** and **Ukrainian** government policies to increase subsidies to the textile industries, or the introduction of highly protectionist policies that raise the price or significantly restrict availabilities of imported textiles.

Trade policies used by the Central Asian governments include export quotas, export licenses, and regulated foreign currency transfers. The governments have established foreign trade companies in charge of cotton-export operations. These are now solely responsible for barter arrangements with other countries for food, oil, timber, and consumer goods.

Most Central Asian export shipments involve barter because of high taxes on cash transactions. As a result, barter can be more lucrative than cash trade, despite the higher transactions costs. Tax rates on export sales can be as high as 80 percent, while there are no taxes on barter transactions. Barter with Russia for oil appears to be profitable. For example, a recent agreement calls for **Uzbekistan** to supply **Russia** with 1 ton of cotton in exchange for 9 to 10 tons of crude oil. A ton of Central Asian cotton had a 1993-average market value of $1,000, and 9 tons of crude oil had a market value of $1,200, so the barter arrangement appears to result in a $200-per-ton net profit to the Central Asian governments (in addition to the fact that the governments paid only $250 to $300 for the cotton they bartered.)

Currently about 50 percent of Central Asian cotton is exported to Western Europe, particularly France, Italy, Germany, and Switzerland. Turkey is a rapidly developing market for Central Asian and Azerbaijani cotton, with most Azerbaijani trade being in the form of barter deals.

Privatization Developments in the Cotton-Producing Countries

The privatization process in the cotton sectors in the leading Central Asian countries has had a mixed start. Land privatization has not been a major factor in cotton production. Nearly 300,000 hectares of land set aside for private farming in **Uzbekistan** has been used mainly for vegetable and mellon farming. The new government policy intends to create 200,000 private farms. There are almost 6,000 private farms

in **Uzbekistan** today, each with an average area just over 10 hectares, not nearly large enough for small farmers to earn a living on cotton production.

On the other hand, the processing sector may benefit more from privatization activities. In **Uzbekistan**, 155 cotton factories (47 percent of the total) are set to become joint stock companies. Unfortunately, it is not known how independent these joint stock companies will be, given that the cotton sectors are likely to remain under tight State control, especially in regard to price setting.

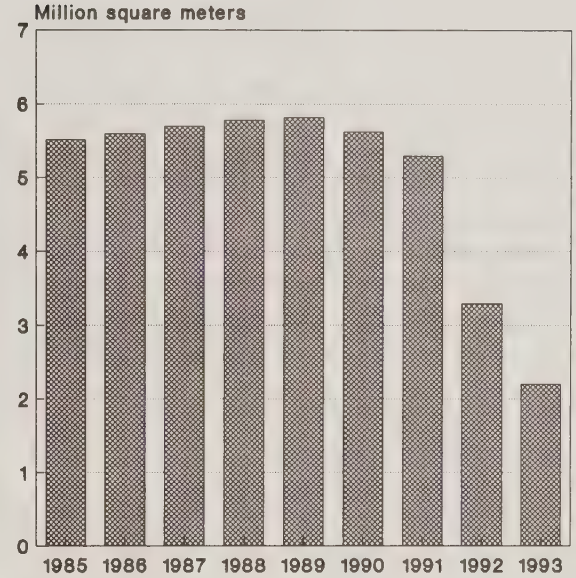
Russian Textile Industry Is in Market Straightjacket

Due mainly to lack of demand, **Russia's** textile industry in 1993/94 operated at only about half of capacity. The dramatic decline in **Russian** incomes since price liberalization, significantly changing relative prices for textile products and raw cotton, and increased availability of better-quality, imported textile products resulted in weakened demand for **Russian** textile products, compared to historical production capacity. Cotton fabric production in the **Russian** Federation during 1993 was only 2.2 million square meters, compared to 3.3 million in 1992 and 5.3 million in 1991 (figure 38).

The outlook for the **Russian** textile industry in 1994/95 is not optimistic. Further declines in **Russian** real incomes are forecast for 1994, and increased competition can be expected from higher-quality imports. However, stricter import laws were passed in March 1994, and may be enforced more stringently than previous laws. Inexpensive, though decent quality, imports at least provide some measure of satisfaction to FSU consumers. If protectionist measures were introduced to support the textile industries, some jobs may be sustained in the short-to-medium term, but at high cost to consumers and from the use of resources that would be more valuable in other uses. It seems unlikely that the textile factories could generate enough revenue to modernize with technologically advanced, energy-efficient, flexible-design equipment, unless foreign investors provide large amounts of funding, or innovative managers find ways to reduce costs and enhance design standards. These developments are unlikely in the foreseeable future.

The **Russian** textile industry's productivity reportedly ranges from one-half to one-eighth that of developed countries. Technologically obsolete, and often old, equipment once supplied from the Eastern Bloc countries have left the **Russian** textile industry with relatively high-cost production. While labor is relatively inexpensive, it is difficult to substitute labor into the textile processing plants, unlike substituting handpicking for machine-picking on the Central Asian cotton farms. Thus, textile plants are plagued with unreliable equipment that consumes large amounts of energy, now a major cost concern as energy prices have risen well above their previously highly subsidized, artificially low levels. The basic technologies and production capacities of the industry

Figure 38
Cotton Fabric Production, Russian Federation



1993 estimated.
Source: O razvitii ekonomicheskoi reformy v Rossiiskoi Federatsii, 1993.

have not been modernized for the last several years because of falling demand for the low-quality, poorly designed **Russian** textiles they produce. Current sales volumes don't provide enough revenues to support investment in new, updated technologies. **Russian** consumers appear to express a preference for imported products, which apparently provide better quality and satisfaction for the money than **Russian**-produced products.

The textile factories are trying to find their place in the newly developing market economy. Formerly, the government supplied producers with all inputs, print designs, and distribution channels. Now, in large part, the factories have to source these independently.

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List of Tables

List of Figures

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